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AIR FORCE

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THE MAGAZINE OF AMERICAN AIRPOWER

December 1955 • 35c

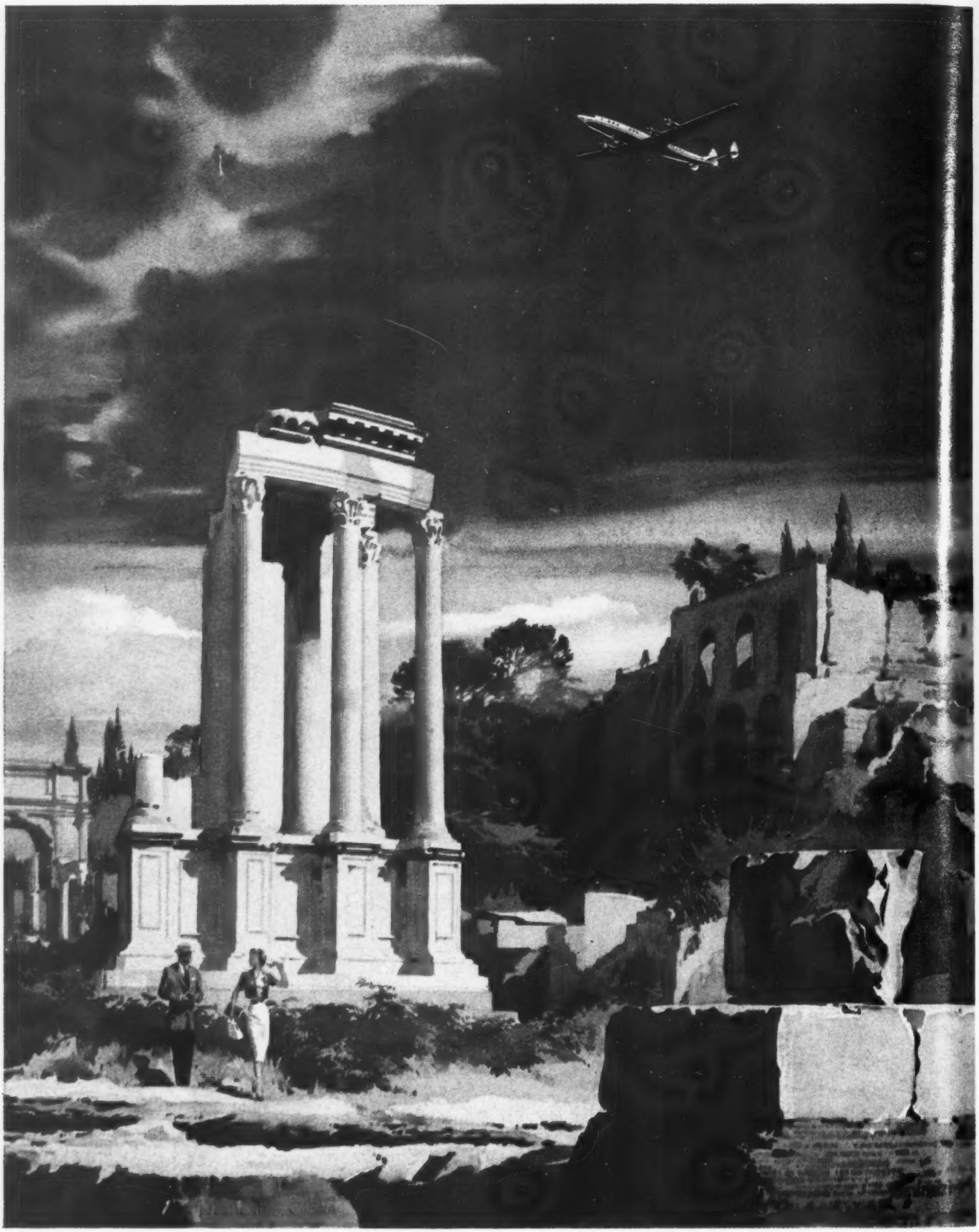
Top Crew in SAC's World Series

B-47s TAKE HONORS FOR FIRST TIME

ALSO IN THIS ISSUE:

Are We Risking Another Pearl Harbor?

Photocharts of Two USAF Commands—SAC and ARDC



HAMILTON STANDARD reversible Hydromatic propellers are specified for TWA's new Lockheed 1649A Super Constellation airliners. Years of aviation experience, the highest engineering skills and unsurpassed modern facilities lie behind these propellers, and other *basic lines** of equipment which Hamilton Standard is producing for jet and piston-engined aircraft.

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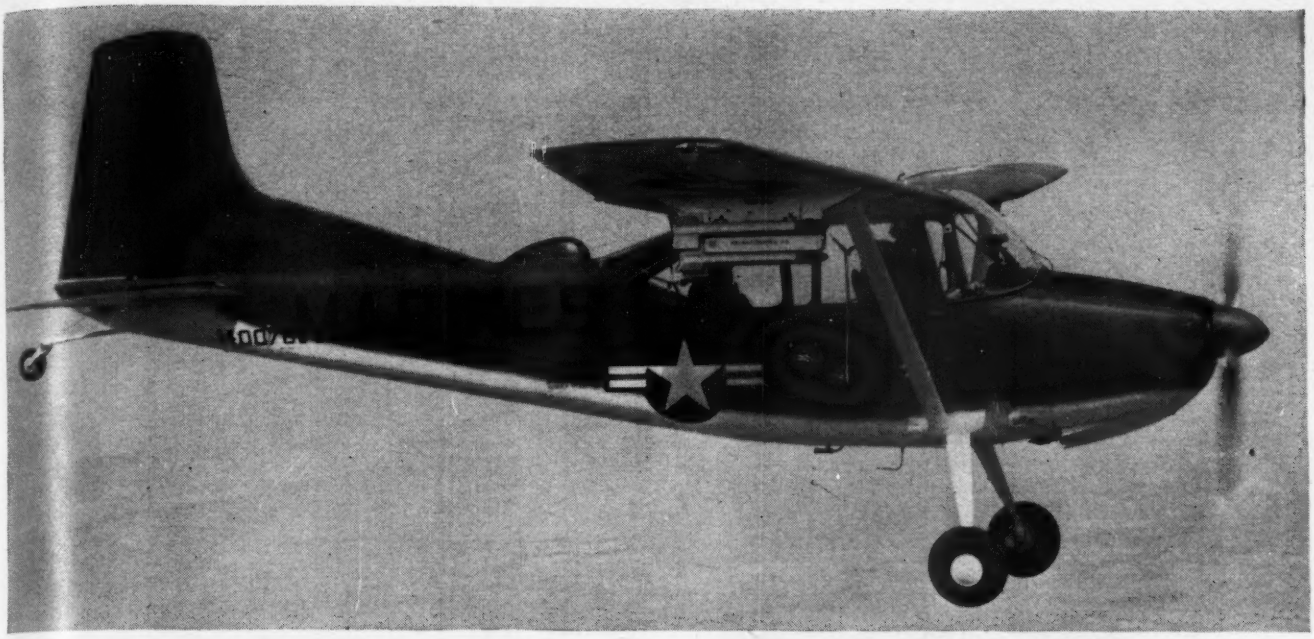
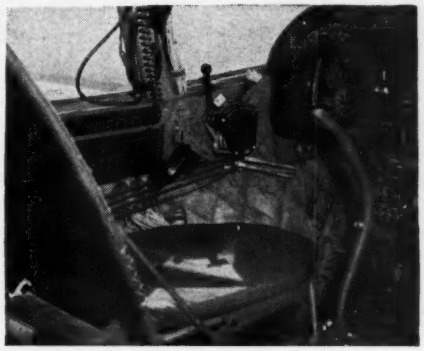


Thick, nylon flak-curtain and armor plate in rear compartment protects observer.



Flak-curtain and armor plate afford pilot maximum protection.

Three-quarter inch armor plate fits under pilot and observer seats.

Cessna's new armored OE-2 protects Marine pilots

Cessna's new reconnaissance-liaison plane—the OE-2—brings greater versatility to Marine Corps air operations, is specifically designed to give the pilot protection in combat.

The OE-2's self-sealing fuel tanks, flak-curtains and armored seat provide maximum protection during ground support operations.

The rugged new plane has a top speed of 190 m.p.h., is a more powerful version of Cessna's famed L-19. The OE-2 will be used as an artillery spotter, target marker, to lay communications wire and to drop supplies to troop positions.

The OE-2's 220 m.p.h. dive-speed capability increases its effectiveness in target-marking operations. It is the first liaison airplane with built-in target marking facilities.

The versatile OE-2, which meets a specific need, is another example of Cessna's cooperation with the military in planning for today's air age.

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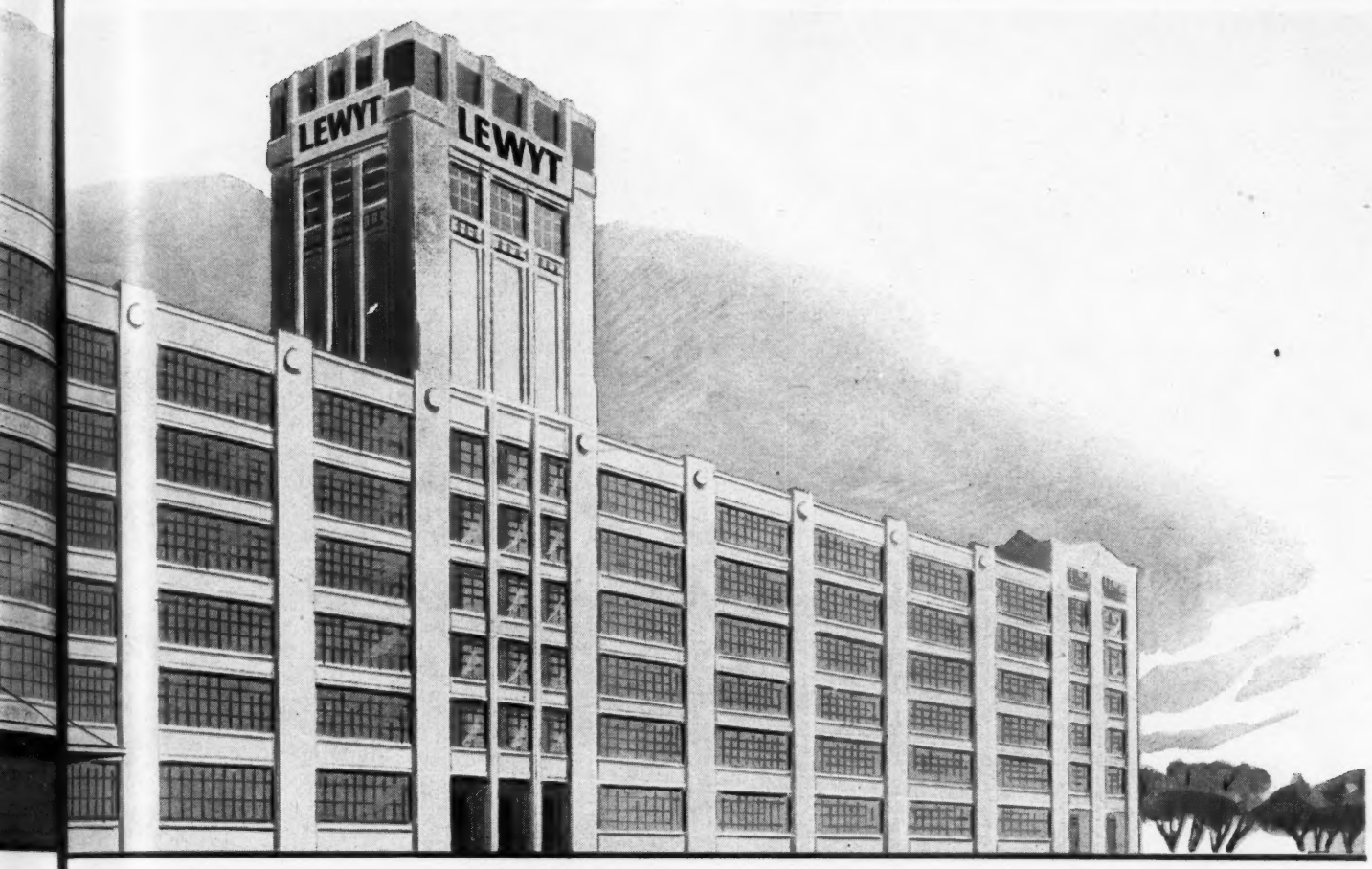

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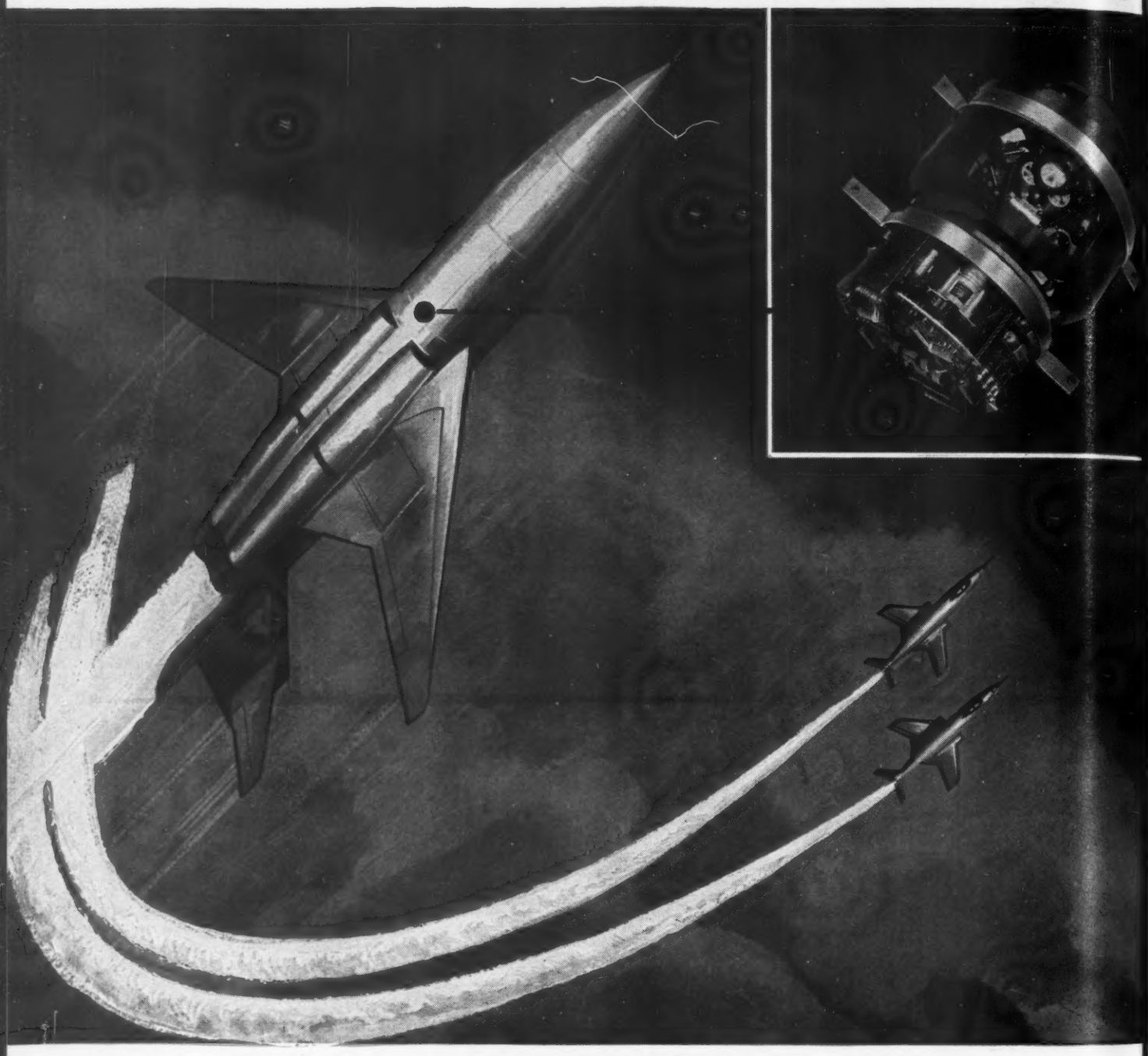
*Developed in conjunction with Flight Control Laboratory, Wright Air Development Center



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***Values based on more than 2000 hours of performance testing.*

VERSATILE IN APPLICATION. As master reference, the Bendix 3-Gyro Stable Platform can replace all vertical and directional gyros used for such functions as indication, auto pilot control, fire control, radar stabilization, navigation, etc. It can be used as either free or slaved platform, but normally is slaved to vertical.

• Total power requirement only 85 watts • Operable to performance specs within 2 minutes after power is applied • Designed for simple, speedy maintenance • Equally applicable to fighters, transports and missiles.

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Eclipse-Pioneer DIVISION

Bendix AVIATION CORPORATION

air mail

Chemical Fuel

Gentlemen: Permit me to point out a misunderstanding in your report on the recent AFA Convention in San Francisco.

On page 27 of the October issue of AIR FORCE Magazine Lt. Gen. Thomas S. Power, Commander of the Air Research and Development Command, was said to have stated that the Air Force is "developing a chemically-powered bomber," in addition to making progress on a nuclear-powered bomber.

This reference, as stated, could be construed to imply that the Air Force is developing a radically new type of chemical engine. However, the term "chemical fuel" is used in contrast to "nuclear fuel" and refers to common fuels—such as gasoline, kerosene and rocket fuels—from which power is derived through the chemical process of combustion. Therefore, airplanes are considered "chemically-powered" if they are equipped with any of the present-day reciprocating, jet, and rocket engines.

Col. A. A. Arnhym
Baltimore, Md.

Soaring in America

Gentlemen: On behalf of the Soaring Society of America, I wish to thank you for the splendid coverage which you gave our 1955 US National Soaring Competition. I also noted with much interest the report of the annual Wright Memorial Glider Meet which is sponsored each year by the Dayton Squadron, AFA.

I have no idea how many of your readers read these items in your Anniversary Issue, but I hope those who did gave pause to what gliding and soaring can do for the youth of this country. It is no secret that all of the countries of Free Europe and those behind the Iron Curtain have well organized aviation education programs of which gliding is an important part. If we are to create and maintain air-mindedness in the youth of our country as a safeguard to our freedom, it would seem that the AFA Squadrons might well take on the project of organizing a gliding program for the youth of their communities.

I sincerely hope we may see more news of soaring in AIR FORCE Magazine.

Floyd J. Sweet, Pres.
Soaring Society of America
Arlington, Va.

Partisan Articles

Gentlemen: The articles in AIR FORCE Magazine are so partisan, so dogmatic, and so prejudiced in their support of airpower to the exclusion of giving any consideration to the possibility that somebody else might be right that I find them almost disgusting to read. It appears that the editors have decided that more airplanes and money for the Air Force is the only thing that mankind should work for and thus print articles to prove this already unequivocal stand. The bias that is present in almost every article to an undigestible degree engenders an attitude of paternal tolerance in the reader for this person (the writer) who is so bigoted by his own enthusiasm that he fails to consider all the facts and distorts those he does state.

W. J. Barker
Dayton, Ohio

The Skyblazers

Gentlemen: I read your story on Air Force aerial demonstration teams in the Anniversary Issue of AIR FORCE with a great deal of interest, and was immensely pleased to see Mr. Art Buchwald's story of his ride with our own "Skyblazers."

I noted, however, that there were no pictures of our team, so I am sending along several with the hope that on some appropriate occasion in a future issue you may be able to use them.

The Skyblazers, front row from left: right wingman Capt Bill Gilmore, leader Maj. William N. Dillard; wingman 1st Lt. John H. Bennett. In rear is the slotman, Capt. Jim Reynolds.

Col. A. P. Clark, Commander
48th Fighter-Bomber Wing
APO, N.Y.

● *There's no better time than right now (see cut).—The Editors.*

Memories

Gentlemen: AIR FORCE Magazine has provided a constant source of enjoyable information, and the articles in it develop some mighty fine arguments around the neighborhood with the Saturday night drink and bull session. Like all ex-pilots and now frustrated throttle jockies, the Air Force will always hold a soft spot in our hearts, and your magazine is that constant reminder of the times when good men were Johnsonized. Having flown combat in the 5th in WW II, and a C-47 in Korea—where I met my Waterloo with a leg amputation—the subject of constant preparedness can be fighting words when people dislike the idea of Air Force spending. You should have seen the disgusted faces of some of our pilots when they tangled with the MIGs in our then obsolete F-84s,

(Continued on following page)

AIR FORCE Magazine is published monthly by the Air Force Association. Printed in U.S.A. Re-entered as second class matter, December 11, 1947, at the post office at Dayton, Ohio, under the act of March 3, 1879. **EDITORIAL CORRESPONDENCE AND SUBSCRIPTION** should be addressed to Air Force Association, Mills Building, Washington 6, D. C. Telephone, Sterling 3-2305. Publisher assumes no responsibility for unsolicited material. **CHANGE OF ADDRESS:** Send old address *and* new address (with zone number, if any) to Mills Building, Washington 6, D. C. Allow six weeks for change of address. **SUBSCRIPTION RATES: $4.00 per year, $5.00 per year foreign. Single copy, 35 cents.** Association membership includes one-year subscription: $5.00 per year (Cadet, Service, and Associate membership also available). **ADVERTISING CORRESPONDENCE** should be addressed to Sanford A. Wolf, Advertising Director, 114 East 40th St., New York 16, N. Y. (MUrray Hill 9-3817). Midwest office: Urben Farley & Company, 120 S. LaSalle St., Chicago 3, Ill. (Financial 6-3074). West Coast Office: Hugh K. Myers, Manager, 685 S. Carondelet St., Los Angeles, Calif. (DUnkirk 2-6858). **TRADEMARK** registered by the Air Force Association. Copyright 1955, by the Air Force Association. All rights reserved under Pan American Copyright Convention.

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and these men were all ex-WW II pilots with "tacusan" fighter hours. Let's hope this never happens again.

Keep up your excellent articles and reports, and you will always have a constant ally from Texas.

Capt. W. E. Hanrahan,
USAF (Ret.)
Bellaire, Tex.

To the Chaplain's Rescue

Gentlemen: I read with interest the constructive criticism of your magazine offered by Chaplain Cole and published on Page 7 of the October issue. In essence he said let this be an Air Force magazine and establish a policy whereby all material included will boost the Air Force. Your editorial comment reflected no appreciation for his remarks, truly intended to be helpful; to the contrary, your comment was a caustic blast that "shot him down in flames."

To make matters worse, you ignored his plea to avoid the Navy reference by displaying (with slight apology) a Navy aircraft in the background of a cheesecake shot. There certainly are enough cheesecake photos available to you with Air Force aircraft in the background that you don't have to resort to this tactic. I suppose it was just coincidence that this picture was inserted in the same issue with the Chaplain's letter. Picture—page 21.

Yours is a fine magazine and presents many Air Force articles in a superior manner, but your editorial staff seems blessed with some very poor taste. How about a little effort to further improve a good magazine —our AIR FORCE Magazine.

Lt. Col. W. A. Norris, ANG
Dallas, Tex.

• *In retrospect we can understand your feeling about our comment on Chaplain Cole's letter. Perhaps one can argue that it was a little on the flippant side. However, the principle expressed therein is a serious one and one which we have discussed around the office many times. Our position has always been that we cannot attempt to censor what an advertiser may say in the space that he purchases from us, for it is difficult to draw any kind of line as to where this censorship will stop. As to the cheesecake picture, that was sheer coincidence.—The Editors.*

Abandoned Objectives

Gentlemen: There is no question as to the importance of airpower in national doctrine. There is, in my opin-

(Continued on page 9)

Little things that make PERFECTION

America's fighting planes depend on many *little*, extremely precise elements to deliver their k.o. punch. In CECO Turbo-jet Engine Controls, vital mating parts are held to closest tolerances; surfaces are finished to 2-4 micro-inches. Assembled and adjusted with infinite exactitude . . . many of them almost completely under specially designed, large-size, high-power microscopes . . . these mechanisms control fuel flow with the extreme accuracy essential to optimum performance.

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RECORD SIX YEAR PRODUCTION PAVES WAY FOR NEW GIANTS

Largest airframe assembly subcontracted. Ryan is producing huge aft fuselage sections for the Boeing KC-135 jet tanker-transport. This new project follows six years of continuous on-time production of fuselage sections for Boeing's KC-97.

It's a tail of two cities. The huge structures built by Ryan in San Diego must mate perfectly with sections produced at Boeing's Seattle-Renton plants. This demands precision manufacturing, perfect planning and flawless coordination.

Techniques, planning and skill save money. Ryan reduced costs 40% during production of KC-97 assemblies. This saving was passed on to Boeing and the Air Force – to provide more aircraft per defense dollar. This is just one example of the outstanding cost-performance at Ryan. The same manufacturing efficiency and smooth integration is found in the production of fuselage sections for Sabre Jet fighters and other military and commercial airframe components such as fuel tanks, control surfaces, wing sections.

Established, financially stable. Ryan performs subcontracts without progress payments from customers. A veteran of 33 years exclusively in the aircraft business, Ryan understands the industry's problems as only an aircraft company can. It has the modern facilities, most advanced manufacturing techniques, and highly skilled engineering and technical personnel needed to produce the industry's most difficult production assignments.

For 33 years, Ryan has excelled in designing and producing high quality aircraft, power plants and avionics – built at low cost, delivered on time.

RYAN
AERONAUTICAL COMPANY
SAN DIEGO 12, CALIFORNIA

ion, a need for greater recognition service-wide of its importance as the dominating instrument in military doctrine, particularly, in the hydrogen age. I am sure the Association agrees with this.

It now appears, however, that the Association has abandoned or obscured these lofty objectives in favor of bicker and quarrel over questions of adequacy with the executive branch and Department of Defense, of which I am a member and with whom I serve.

The recent articles of Mr. Loosbrock have been particularly disturbing. The inferences that: (a) The question of balancing the budget transcends the question of national security, and (b) that we are content with a second best and therefore inferior Air Force—are as unfair as I believe them to be untrue.

How much is enough? It seems to me that we have assembled in the councils of our government and services abundant talent to grapple with this problem. I have great confidence in their judgment and high respect for their decisions. Mr. Loosbrock apparently does not. But not only his personal opinion is involved. Speaking in the capacity of Managing Editor of the official organ of the Association, I must accept that his editorial comments have the blessing of Association policy. If this is so the aims of the Association are in sharp conflict with the decisions of my bosses.

The Association will, undoubtedly, continue its attacks on the executive branch; undoubtedly, it does so at the encouragement of its members. Therefore, I find myself in the incongruous position of owing, professing, and feeling loyalty and allegiance to my leaders on the one hand and encouraging assaults upon their judgment and integrity through membership in an association on the other.

You will certainly excuse me if I remove myself from this position. Please accept my resignation from membership.

Lt. Col. Stanley C. Johnson
Orlando, Fla.

• *Managing Editor Loosbrock specifically stated in his September article, "Can We Afford a Second-Best Air Force?": "I would like to make it clear that the views I am about to present are my own. A great many persons will disagree with them, I am sure, both in the Air Force and in the Air Force Association."—The Editors.*

Jet-Styling

Gentlemen: During a television commercial which featured the "jet-styling" of the 1956 Dodge, I was amazed to see two AF officers, one F-86D Sabrejet, and obviously a runway on an AF installation. Is the Air Force sponsoring or endorsing these films (and the pictures shown in current magazines), or is someone in USAF headquarters stupid enough to think the taxpayers don't notice these things?

William N. Sonia
Chicago, Ill.

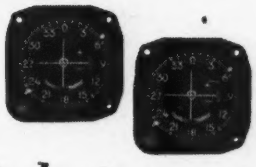
• *As a rule, USAF grants advertisers permission to use official pictures to illustrate such things as jet-styling and the like, but this policy in no way constitutes Air Force approval or endorsement of the product.—The Editors.*

CAP Patch

Gentlemen: I have been reading your magazine for a long time. I was in the CAP three years before joining the United States Air Force and feel that every man and woman who served in the CAP should wear the CAP patch. A regulation could be passed, and great officers like Maj. Gen. Lucas V. Beau, Commander of the Civil Air Patrol, can help enforce it. It is a great patch to wear.

A/3C Duane S. Whitfield
APO, N. Y.

two can do it better...



and so can dual omni!

Two on the job make any mission *twice* as easy . . . just as dual ARC Omni installations double efficiency, ease and confidence in navigation. With dual omni 15D equipment, a single pilot can make a fix *faster* . . . he can fly any omni track while also cross-checking for position. It's easier to make transition from omni to runway localizers.

With two pilots, the work can be shared for greater ease, by using both omni instruments simultaneously for different jobs.

ARC 15D Omni is compact, lightweight, CAA certified, and now employs new course indicator which combines course selector and cross-pointer meter in a single space-saving unit.

Lighten the load with ARC DUAL omni. Specification data sent on request.

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AIR FORCE

THE MAGAZINE OF AMERICAN AIRPOWER

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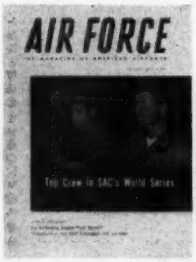

THE COVER

This month's cover shows how seriously SAC's "World Series" bombing and navigation competition was taken by Lt. Cols. (then majors) Horace Traylor, Jose Holguin, and Martin Speiser. They and their B-47 won top honors to prove that the faster, all-jet bomber could be even more accurate than the slower B-36. The dramatic story of how this crew won the coveted Fairchild trophy is told by Ed Mack Miller, a consistent contributor to AIR FORCE Magazine (see page 37).

AIR FORCE MAGAZINE STAFF

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takeoff

takeoff to tomorrow

This is the SeaMaster story—foreword to a new chapter in the epic history of Naval aviation.

Now being readied for its role as the U.S. Navy's first multi-jet attack seaplane, the primary mission of the big swept-wing Martin XP6M will be mine laying and photo-reconnaissance. And it promises to be of major military importance.

For the SeaMaster is the first of a new aircraft *type.* And as the spearhead of a whole new arm of the naval arsenal—the Seaplane Striking Force—it now focuses attention upon a revolutionary principle of military strategy known as the waterbased aircraft concept. Here's why:

The SeaMaster has global range. Powered in the over-600 *mph* class, it can operate from the seaways, lakes and rivers of the world, on extended periods of duty, and independent of fixed bases. For the Martin development program includes facilities for off-shore maintenance, refueling and resupply which provide a flexibility and mobility never before possible in military aircraft.

MARTIN
BALTIMORE

wing tips

By Wilfred Owen

According to CAA, it will be necessary to double the installation of navigational aids in the United States. The reason: to provide coverage of the entire airspace between 18,000 and 75,000 feet for jet aircraft and to extend navigational coverage down to 700 feet along airway routes for small planes.

• • •

The world's commercial airlines operate 2,525 aircraft.

• • •

There are 1,391 air taxi operators in the United States.

• • •

US domestic airlines, including both trunk and local service, operate more DC-3s than any other type. Douglas accounts for more than half of all airline aircraft flying in the United States.

• • •

If the ten-minute separation of traffic now required for safety were applied to jet airliners, a block of airspace 100 miles long would have to be reserved for each plane.

• • •

The CAA is putting the world's airways on "standard" equipment to provide uniform navigation facilities for global transport. It is now planned to add eleven new very high frequency omnidirectional radio ranges in India, four in Pakistan, three in Greece, two in Turkey, and one in Lebanon. An additional forty-nine ranges are already installed or programmed along the route from England to Japan.

• • •

A San Francisco-bound Convair letting down for a landing collided with an eastbound goose. The bird

punched a dent eighteen inches in diameter and six inches deep in the airplane's nose.

• • •

In August there were 312 small plane accidents in the United States, thirty-five of them fatal to fifty-two people.

• • •

Jet streams, or rivers of wind, are found over the United States at almost all times during the winter. They move at average speeds of 150 to 250 knots at an average height of 35,000 feet, with width no more than fifty miles at the core, and a length that frequently encircles the globe.

★ ★ ★ ★ AFA 1956

National Convention

and Airpower Panorama

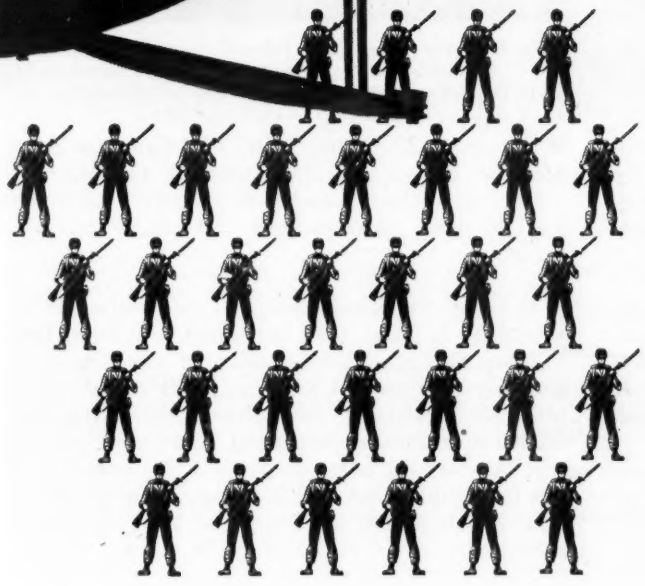
★ ★ ★ ★ NEW ORLEANS

AUGUST 1, 2, 3, 4, 5

Roosevelt and Jung Hotels

HOW TO CALM EMERGENCIES!

USAF HERCULES



The early presence of U.S. troops in a trouble zone has often prevented disorders and averted actual combat. The important thing is *getting them there in a hurry* to meet any emergency.

The new C-130 Hercules is an excellent airplane for this job. This combat cargo transport carries 92 fully-equipped troops at high speed over long routes in air-conditioned, pressurized cabins which minimize in-flight fatigue.

The Hercules was designed for urgent action. Its unique tail ramp permits troops to run aboard. With its four Allison T56 turboprop engines it takes off in 12 seconds, uses improvised runways for landing troops closer to action.

The Hercules is in quantity production today for the USAF as a paratroop carrier, cargo carrier, troop carrier and airborne ambulance. It's another product of Government Aircraft Plant No. 6, in Marietta, Georgia, America's first turboprop production line for transports.

LOCKHEED

AIRCRAFT CORPORATION

Georgia Division, Marietta, Georgia

AIRPOWER IN THE NEWS

■ The AF plans to **revamp its system of developing and producing warplanes** to try to cut the present eight to five year requirement to bring a plane from the paper stage into the air. The plans **will affect both the taxpayer and the aircraft industry.** Under the new scheme certain companies which are more capable, based upon previous dealings, will be **favored as steady customers,** thus doing away with the time-consuming competition in contract awarding. And the **aircraft industry will shoulder more of the responsibility** in getting the plane into full production, making the final decision on blueprints. Security will also be eased for the manufacturer. **Defense Secretary Charles E. Wilson** appointed **Deputy Defense Secretary Reuben B. Robertson** chairman of a group to study various proposals. Others named to the special committee are **Assistant Defense Secretary (Applications Engineering) Frank D. Newbury,** vice chairman; **Assistant Defense Secretary (Comptroller) W. J. McNeil; Assistant Defense Secretary (Supply) Thomas P. Pike; Acting Assistant Defense Secretary (Research and Development) J. B. Macauley; Air Force Undersecretary James H. Douglas; Navy Undersecretary Thomas S. Gates, Jr.;** and **Army Undersecretary Charles C. Finucane.**

Past AFA President Arthur F. Kelly, newly elected president of the Air Traffic Conference, flanked by his new VPs, Rex Brack of Braniff (left) and TWA's John Clemson.

■ **New York University's Hall of Fame** for Great Americans **now includes Wilbur Wright.** The co-inventor of the first airplane was **one of three elected** at the last meeting in November. Some 209 names were considered. **Eighty-six distinguished Americans have received the honor** since the organization was founded in 1901.

■ Arlington, Va., resident **William J. Eck** isn't letting his seventy-nine years prevent him from reserving a seat for **a ride on the first transatlantic jet flight.** A veteran airplane traveler, Eck signed up for the first passenger flight across the Atlantic in 1931—actually eight years before the service was started. And now he's holding a seat for the first transatlantic jet ride **on Pan American's service.**

■ The Air Force's recently released film **"Class of '59"** has already been placed with **UP Movietone News,** for both TV and theater showing. The networks which are showing it are **CBS, John Daly's ABC news program,** and **Arlene Francis's NBC-TV show.** MGM has agreed to show it, as has Telenews TV. The thirteen-minute film depicts **life at the Air Force Academy** with scenes at its interim site, Lowry AFB, Denver, Colo., including pictures of the living quarters, the dining hall, military training, navigation training flights and the cadet's introduction to jets. The film was **produced by MATS's Air Photographic and Charting Service** and manufactured by the Lookout Mountain Laboratory, Hollywood, Calif.

■ **John P. Henebry, a national director of AFA,** has been named an honorary **Commander of the British Empire.** The award was presented in Washington, D. C., by **British Ambassador Sir Roger Makins** (see cut), for Henebry's service to the UN command during the Korean war as commanding officer of the **437th Troop Carrier Wing.** "Jock" Henebry holds the rank of brigadier general in the AF Reserve.

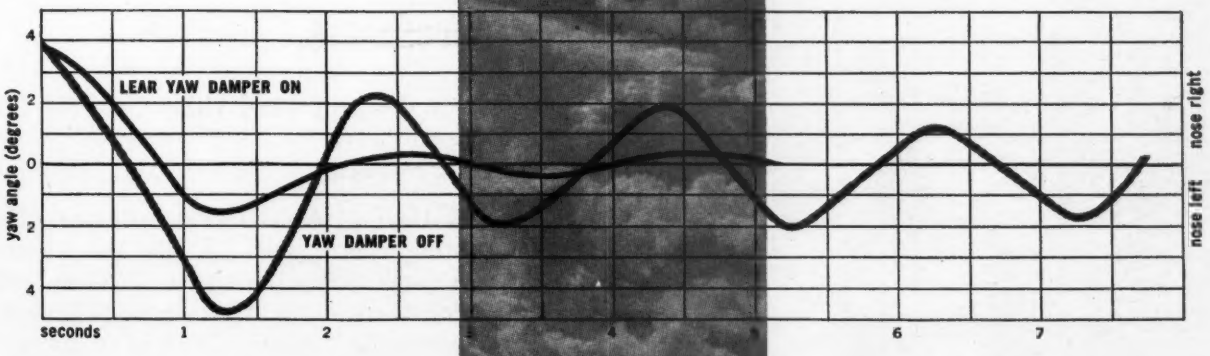
AFA Director Brig. Gen. John P. Henebry is named honorary Commander of the British Empire for his work in Korean war. British ambassador, Sir Roger Makins, makes award.

■ A test of the **United States and Canadian defense system** has been called for sometime this winter. In the operation, dubbed **"Cracker Jack,"** SAC's big bombers will **test the joint radar systems** of Canada and the United States.

■ **Housing** for bases overseas and within this country is picking up, **Maj. Gen. Raymond J. Reeves,** Director of Military Personnel in the office of the Deputy Chief of staff for Personnel, USAF, said last month. He told of plans for fiscal year 1957 which call for the building of **52,000 new units** at various AF bases both here and overseas. Already the construction of 1,875 houses in England has been authorized and last year funds for the construction of 210 houses on Guam and 730 on Okinawa were approved.

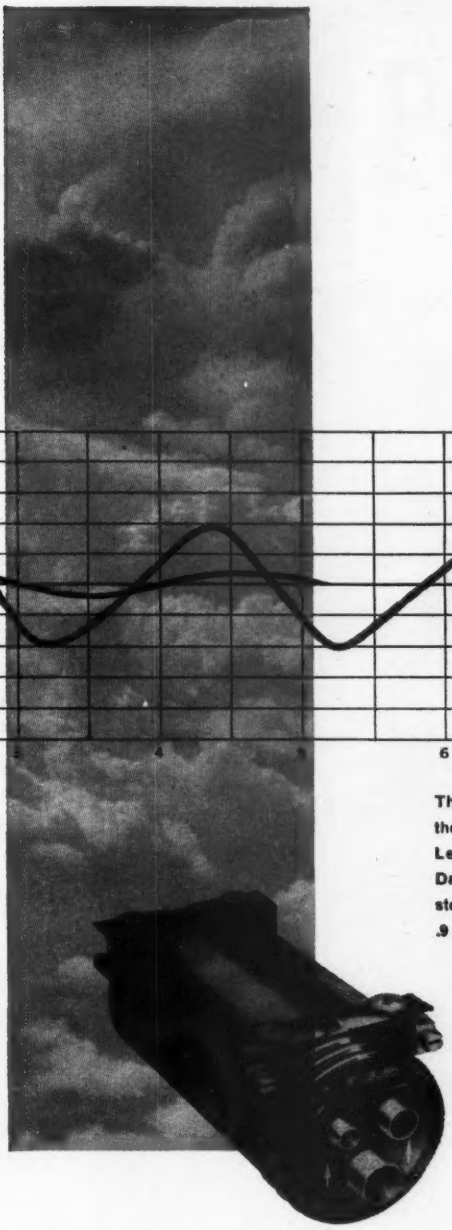
■ The Air Force's former Assistant Secretary, **Roger Lewis, has joined Pan American World Airways** as executive vice president in charge of development and defense projects. Before being appointed Assistant Secretary of the Air Force in March 1953, Lewis had held executive positions with the **Curtiss-Wright Corporation, Canadair, Ltd.,** and **Lockheed Aircraft Corp.**

(Continued on page 70)



The NAA data presented here show the difference in damping time between Lear Yaw Damper "off" and Yaw Damper "on" operation, starting from steady side slips with full rudder, at .9 Mach number, altitude 40,000 feet.

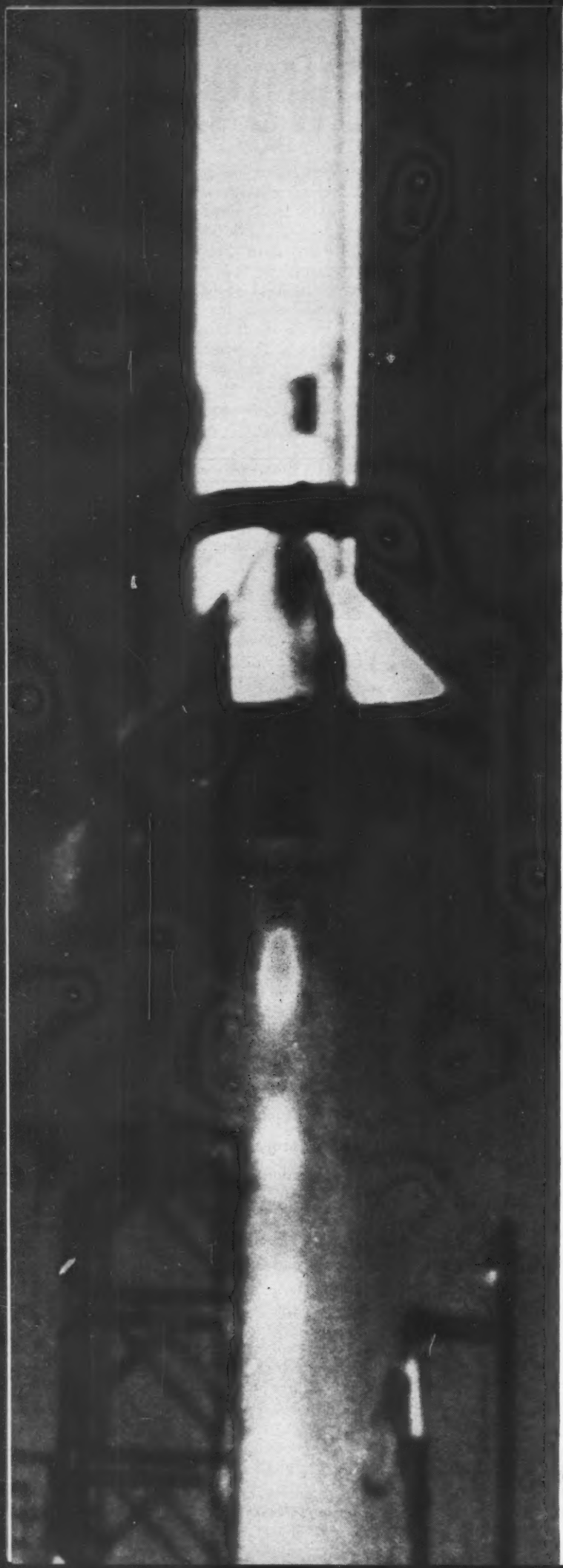
to increase "kill" probability



Weapon system design combines many arts for the purpose of annihilating the enemy. The spectacular stabilizing effect of the Lear Yaw Damper on the flight path of the F-86D Sabre is shown in the above curves prepared by North American Aviation, Inc., for the enlightenment of fighter pilots. "From these data," says NAA, "it is clearly seen why the yaw damper is an essential device to make your airplane a more effective and efficient rocket firing platform."

LEAR *Grand Rapids Division/ Grand Rapids, Michigan*

LEAR PITCH, ROLL, AND YAW DAMPERS ARE AVAILABLE IN ELECTRONIC, MAGNETIC, AND TRANSISTORIZED VERSIONS, ENGINEERED TO THE PERFORMANCE OF THE CENTURY SERIES FIGHTERS



G.E. at Work for Nation's

Project Vanguard underway as G.E. teams up with Martin Baltimore to get Satellite vehicle off earth into upper atmosphere

Even as you read this, General Electric has begun work on the powerful rocket engine that will launch the world's first earth satellite.

PROJECT VANGUARD, under U.S. Navy management, will be the initial step toward the exploration of space. The satellite will be carried up in a three-stage rocket built by Martin Baltimore. It will then spin around the earth, at an altitude of some 200 miles, transmitting a description of conditions in outer space. This radio-wave description may include information on the nature of the sun, solar radiation, cosmic noise, and magnetic noises and their cause . . . enabling scientists to better understand the laws of the universe.

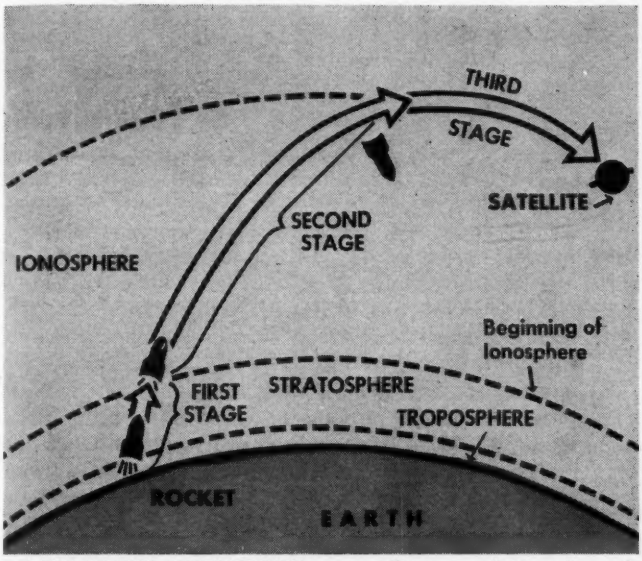
G-E DESIGN DATA ON POWERFUL ENGINE for VANGUARD's first stage cannot be revealed at this time. However, it can be said that static firing tests of similar-type G-E engines have been highly successful.

LAUNCHING OF THE SATELLITE will mark still another milestone in rocket engine progress at General Electric. Since 1945, when G-E scientists and engineers followed advancing Allied armies to study captured German V-2 rockets, the company has been constantly developing better, more powerful rocket engines. It was under G-E supervision, for example, that the existing altitude record of 250 miles for a two-stage rocket was established.

GENERAL ELECTRIC'S CONTRIBUTION to PROJECT VANGUARD climaxes the company's first decade of rocket engine development. G-E experience and know-how will continue to pay off in more powerful, more reliable rocket engines for American aviation. 234-5

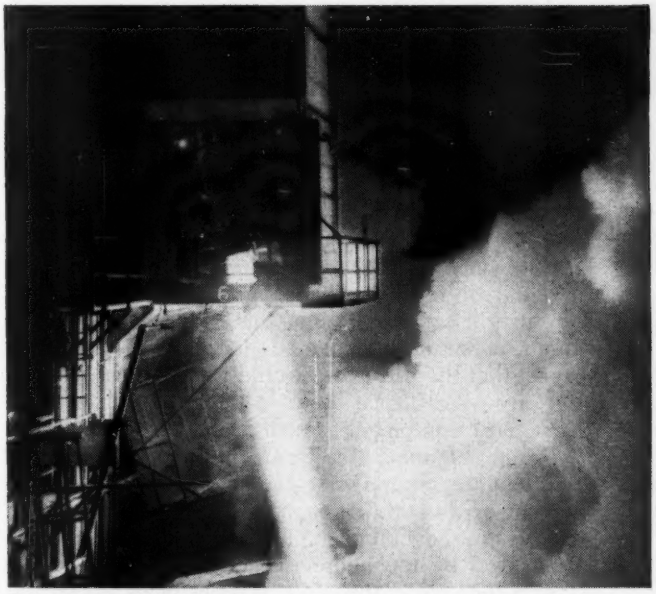
VIKING ROCKET, built by Martin Baltimore, roars from launching pad at White Sands, New Mexico. Martin's new VANGUARD airframe may be similar in appearance to this U.S. Navy high-altitude research vehicle.

on New Rocket Powerplant First Earth Satellite Project



G-E ENGINE WILL LIFT SATELLITE many miles upward, then drop off. Second engine will take over, push satellite to 2-300-mile height where third powerplant will blast satellite into 18,000-mph, egg-shaped orbit around the earth.

COMBUSTION RESEARCH is a vital phase of G.E.'s investigations in rocket engine development. Modern labs, coupled with top rocket engine design engineers, are now yielding rapid forward strides in powerplant development.



G-E STATIC TEST FIRINGS at Malta Test Station, Malta, N. Y., have already proved prototype engine's transition to full power smooth and rapid, its performance safe, reliable.

HALF-SIZE MODEL OF PREVIOUS G-E ENGINE is examined by A. P. Adamson and D. Cochran of G.E.'s Aircraft Gas Turbine Development Department. VANGUARD powerplant will be similar, but will use new fuels to assure high performance.

Progress Is Our Most Important Product

GENERAL ELECTRIC

The Air Guard has the mission

Give Them the Tools

By Edmund F. Hogan
RESERVE AFFAIRS EDITOR

THE National Guard tradition is older than the nation itself. National Guardsmen have fought in all of our wars from Lexington to Mig Alley. Proudly, the Guard calls itself "Minute Men," a term coined years ago to define the speed with which the early militiamen responded to the call to do battle with the British.

There are today some 400,000 Guardsmen. The bulk of them are organized into Army units of various kinds and sizes. These have excellent alert plans and can be pulled together comparatively fast. Not, to be sure, in minutes but certainly within hours.

A little more than 60,000 make up the Air National Guard and, in the framework of modern war, these come closest to being real "Minute Men." For the capability of the Air National Guard, by and large, can be measured in minutes and, the state of the art having progressed to the point where Russia can deliver an atomic attack at the speed of sound, it is almost certain that the decision in any future war will hinge on the success or failure of the opening attack.

A little more than a year ago a pretty fair strategist, Gen. George C. Kenney, placed the problem in perspective with the observation that on the day the attack is launched, the active Air Force establishment, the Air National Guard, and those Air Reserve individuals and units which are ready to function immediately will be all that will stand between our survival or our downfall.

At almost the same time this observation was being made an event of historic importance was taking place.

In all of the years of its existence, except perhaps for the hurried call to arms at the outbreak of the Revolutionary War, the National Guard has had time to drop its plowshares, pick up its swords, and prepare for combat.

But a year ago the Air Force, recognizing that modern aircraft and modern weapons placed a premium on the *force in being* at the time of attack, called upon a portion of the Air National Guard to accept an active air defense mission.

Never in the history of the Guard had this been done. There are those who will argue that more than a year before Pearl Harbor National Guard Infantry divisions were called to active duty. But the two situations are not analogous. The Continental United States was not in danger of attack before Pearl Harbor. Nor were these Guardsmen of 1940 expected to be ready to do combat immediately. Rather they were training for their combat mission.

Last year, however, the Air Force requested, and the Air National Guard agreed to provide, seventeen Air Guard squadrons to accept an active air defense mission. Many persons, in and out of the Air Force, greeted this arrangement with skepticism. It was argued that no "part-time patriot" could do the job adequately. Further, there was a technicality in the program that made it suspect.

The Air Force—and the Air Guard—knew that it would be impossible to call every last member of seventeen Guard squadrons to active duty in peacetime. The important elements were aircraft and pilots. So, the Guard was asked to provide—and did provide—two aircraft and five pilots on a daylight-to-dark basis at each of seventeen locations.

The pilots were asked to accept short tours of active duty, ranging from one to fifty-nine days. Many thought that the same five pilots would renew their active duty tours and thus remain on active duty the year round, making it impossible for tours to rotate through the squadrons. As a result, said these critics, the total intercept capability of each squadron would not be increased.

The record shows that each of the seventeen squadrons has rotated its combat crews 100 percent. Guard pilots have been scrambled more than 750 times each month and have averaged two intercepts per scramble. This contribution to air defense is so substantial that Air Force now wants to increase it. Just how many more Air Squadrons should be included in this active air defense mission is still a matter for debate. But the best guess is that the coming year will find additional twenty-three squadrons standing runway alert. And this alert is exactly the same as the active Air Force requirement—five minutes from initial alarm until the aircraft are airborne.

With the same mission as the Regular Air Force, insofar as air defense is concerned, it would be reasonable to expect that the Air Guard would have the same equipment. But any resemblance between the Air Guard mission and Air Guard equipment is coincidental.

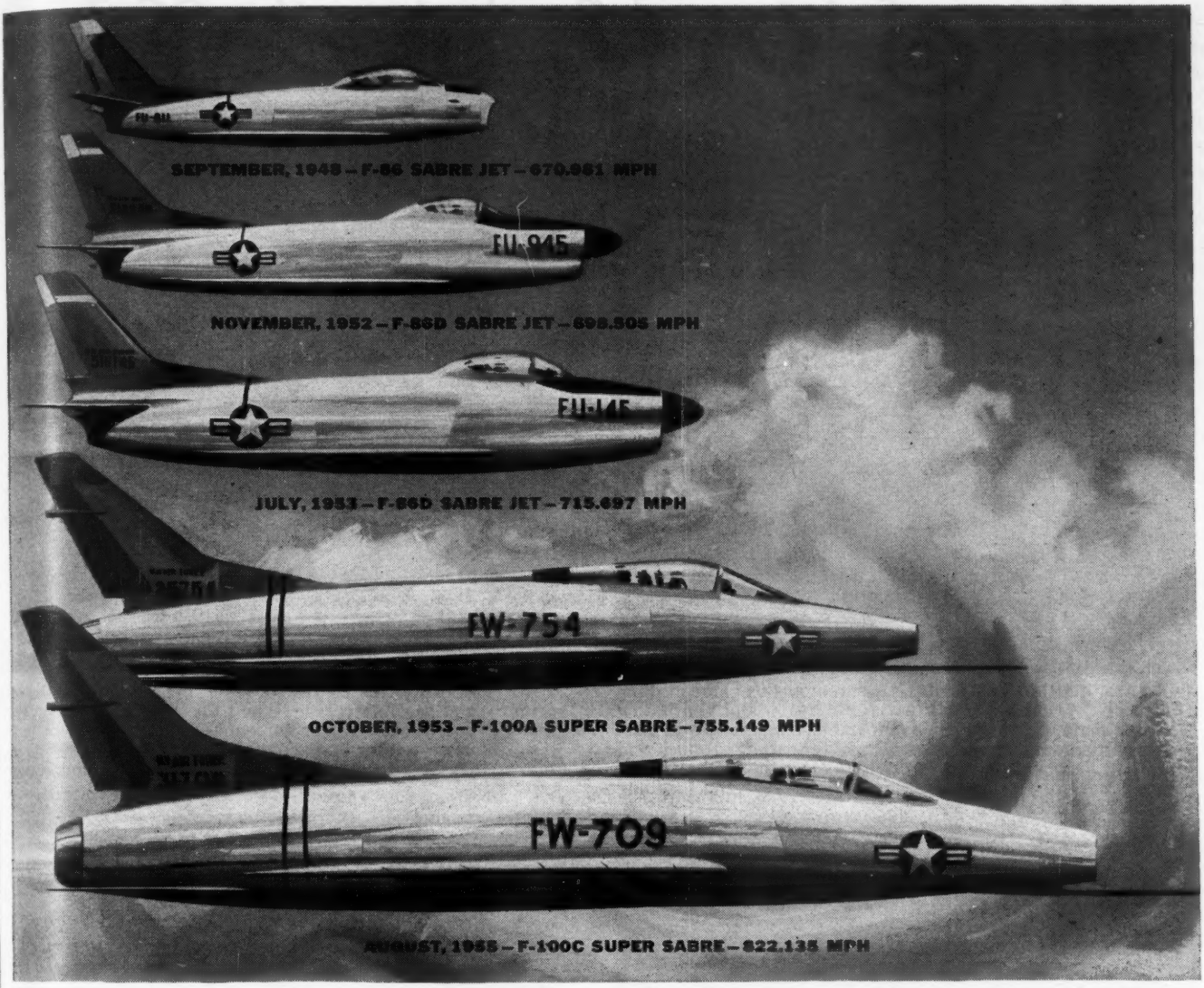
In round numbers the Guard program calls for a total of 1,800 fighter aircraft. At the moment, about sixty-seven percent of this total is on hand. Even the clearest crystal ball cannot show all of the fighters in place before June 30, 1959. And by then obsolescence will have taken its toll.

At a time when the century series of fighter aircraft are being phased into the active-duty Air Force, most Guard jets are of immediate post-War II vintage. In some instances Guard fighter squadrons, with an intercept mission, are still flying propeller-driven, World War II F-51 Mustangs. Intercepting a jet bomber at 45,000 feet with an F-51 requires a technological miracle.

The scheduled program for equipping the Guard in the next three-plus years will not improve the situation appreciably. True enough, the prop fighters will have been scrapped, but the Guard will still be flying F-80s, early F-84s, F-89s, and F-94s. Not until Fiscal Year 1959, for example, is the Guard scheduled to receive the F-86D.

(Continued on page 23)

NORTH AMERICAN HAS BUILT MORE AIRPLANES THAN ANY OTHER COMPANY IN THE WORLD


SEPTEMBER, 1948 – F-86 SABRE JET – 670.981 MPH
FU-945
NOVEMBER, 1952 – F-86D SABRE JET – 698.505 MPH
FU-145
JULY, 1953 – F-86D SABRE JET – 715.697 MPH
FW-754
OCTOBER, 1953 – F-100A SUPER SABRE – 755.149 MPH
FW-709
AUGUST, 1955 – F-100C SUPER SABRE – 822.135 MPH

NEW AIR SPEED RECORD MARKS U. S. SUPERSONIC SUPREMACY

Year after year, record performances by Air Force pilots in North American planes help confirm our nation's superiority in the air.

Now, the *first supersonic* speed record—set by Col. H. A. Hanes in a North American F-100 SUPER SABRE* at a faster-than-sound 822.135 m.p.h.—is powerful, new proof of our Air Force's Supersonic Supremacy.

F-100s like today's record-holder have been delivered in quantity to the Air Force, and are now flying from U.S. Air Bases in America's first Supersonic Squadrons. They defend our skies as day fighters, fighter-bombers and in other specialized tactical missions. These ranks grow stronger daily with new F-100s from North American's Los Angeles and Columbus, Ohio plants.

Another example of the research, development and production leadership that keeps North American in the forefront of aircraft, rocket engines, guided missiles, electronics and peaceful applications of atomic energy.

Engineers: North American offers challenging career opportunities. Write Engineering Personnel Office, Los Angeles or Downey, California; or Columbus, Ohio.

Engineering Ahead for a Better Tomorrow

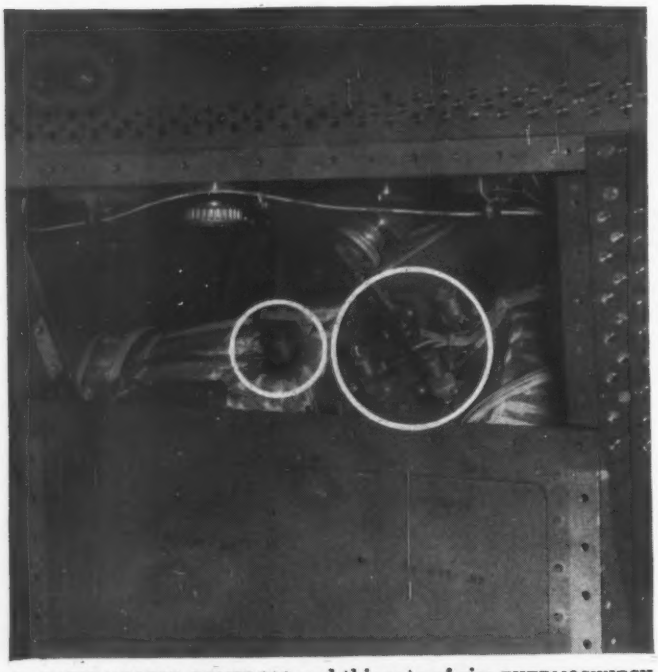
NORTH AMERICAN AVIATION, INC.

*Reg. U.S. Pat. Off.

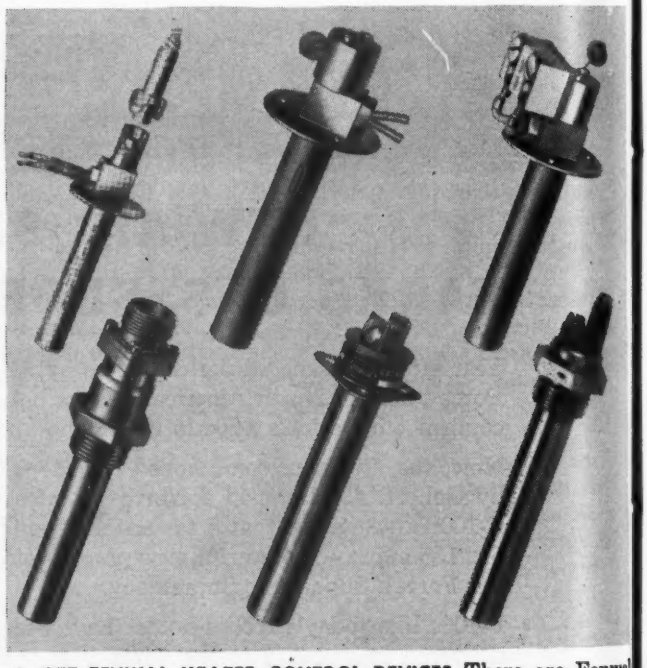
How Fenwal Heater and Ventilating Controls Assure Safety and Comfort on the DC-7

1. A SAFE, COMFORTABLE RIDE is assured on this globe-girdling Douglas DC-7. Fenwal THERMOSWITCH® Heater and Ventilating Controls maintain a steady, comfortable temperature in passenger and crew cabins. Compact, highly resistant to shock and vibration, Fenwal THERMOSWITCH units meet the vigorous temperature control requirements encountered over the far-flung Douglas serviced routes.

2. ANTI-ICING HEATER OF THE DC-7, shown here, is equipped with primary and secondary cycling and overheat THERMOSWITCH units. Proper functioning of empennage control surfaces is the result of close temperature control strictly maintained in the tail section despite stringent environmental and operational conditions.



3. THESE HEATER CONTROLS and this rate-of-rise THERMOSWITCH unit located in the bleeder duct off the main cabin heater accurately control cockpit temperature. Perfect approach visibility made possible by dependable windshield anti-icing control is also assured by the dynamic Fenwal operating principle.



4. GET FENWAL HEATER CONTROL DEVICES. There are Fenwal units for all types of aircraft. The outer shell is the temperature-sensitive element that actuates the internal contacts the instant surrounding air reaches the set point. Write for complete data to

Fenwal Incorporated, Aviation Products Division
3412 Pleasant Street, Ashland, Massachusetts

Fenwal Controls Temperature . . . *Precisely*

Why does an Air Guardsman, who is being called upon to take-off from the same runway at the same time with his counterpart in the Regular establishment to intercept an enemy aircraft, have to fly an obsolescent aircraft? It is all too easy to point the accusing finger at the Air Force. This is the course of least resistance, and one down which many Guard enthusiasts are prone to travel.

The prime villain is money, or the lack thereof. The Air Force can be expected to shoulder some of the responsibility because it has been late to recognize that the Air Guard can make a considerable contribution to air defense —or offense. But certainly the men who set the fiscal policies for the military establishments are equally responsible for the state of Air Guard equipment.

It may surprise a great many Guardsmen to learn that Congress does not appropriate one thin dime for Air Guard air craft. These are given to the Guard by the Air Force and always from stocks surplus to Air Force needs.

Since the requirement of the active establishment must be met first, the speed with which the Guard is equipped is determined exclusively by the speed with which the active-duty Air Force is equipped. And since the end of World War II the distinguishing factor in the matter of equipping the Air Force has not been speed, but rather the lack of it.

Any program that would help the Air Force obviously would benefit the Guard. There is no doubt that the Air Force would welcome higher production schedules, but the men who control the dollars give no sign they are contemplating such a course of action.

What Guardsmen find difficult to understand is the seeming inability of the world's greatest producing nation to equip its first-line reserve with modern aircraft when the Soviets are able to pour MIG-15s and later models into Red China and satellite countries. And even, apparently, have modern fighters in such abundance that they are ready to deal off a quantity to the Middle East.

Further, Air Guardsmen are confused by a national policy that dictates placing aircraft far superior in performance to Guard equipment in the hands of Western European nations. They are not opposed to the policy because they realize these nations are under the gun, so to speak, should the Russian air force attack. But they question whether this better equipment is not being issued at a rate too high for its proper utilization. Do the Belgians, French and Turks, for example, have the highly-skilled technicians in the quantities required to keep the number of aircraft they possess flyable? And do they have the number of qualified pilots needed to fly the aircraft enough to make it worthwhile to put them there in the first place?

The answers to these questions are hard to find. But many Guard people believe that too many aircraft have been given to Western Europe too soon. They are sure they have the right answers to the questions. For the skill level of the technicians in the Air Guard is unmatched even by the Regular Air Force. And, on the average, the Guard pilot has more total time and more jet time than the active duty pilot.

Technical skill and pilot proficiency are not the only investments the Nation has in the Air National Guard. There is a large dollar investment that is tied to a Guard equipped with modern aircraft.

From 1947 through 1950, the Air Guard spent $31 million to construct facilities. This construction was predicated on an Air Guard equipped with conventional aircraft.

In 1951 it became apparent that the Guard would have to get into the jet business all the way to fill its role in the war plan. At that time only thirty-six Guard airfields had runways that could accommodate jets, or had improvements scheduled that eventually would make jet operations possible.

Since 1951 the Air Guard has spent $82.5 million on facilities, the bulk of it for the jet program. The Guard now has sixty-seven bases capable of handling jets. By June 30, 1959, another twenty bases will have the facilities necessary for jet operations. In all, the Guard will be able to operate from eighty-seven jet bases—a dispersal factor of no little importance in the event of attack—and the dollar investment will have reached something in the neighborhood of $180 million.

It is hard to believe that we can provide the concrete and yet cannot provide modern equipment to use this concrete.

It would be understandable if the Air Guard had not demonstrated, time and again, that it does have the "Minute Man" capability.

At the time of the outbreak of the Korean war, for example, the Air Guard squadron assigned to the District of Columbia had a full complement of aircraft, combat-loaded and ready for take-off along side of a Regular squadron based on the same field. Had there been an attack that morning, the mission of both units would have been the same. The big difference between the two units lay in their equipment. The Regular squadron had new, sweptwing jets. The Guard squadron had much slower, straight-wing models.

Several months ago the National Guard conducted an operation known as "Minute Man." It was designed to test the speed with which both the Army and Air Guard could mobilize. Air Guard aircraft were in the air within minutes of the time the alert was sounded. Many had landed for new fuel loads while Army Guardsmen were still en route to their armories.

Air Defense Command's Operation "Stop Watch" of a few weeks ago again tested the Air Guard's ability to get into the air rapidly. Again, the results were similar. Air Guard pilots were winging into the blue within minutes and, for the most part, the entire Air Guard was airborne within two hours.

All of which brings to mind the fact that the country still is pouring millions of dollars into armories for Army units and great concern is expressed that perhaps too few are being built. The difference between the armory and the airplane is that the latter, even the old models the Guard flies, can, if successful, intercept an attacker miles from the city in which the armory is located. And that's where the intercept must be made in this day of advanced weapons. For, if the attacker gets through to the city, the armory very likely will be used as a collection point for the dead rather than as an assembly point of mobilization.

Perhaps the time has come to take the dollars we are investing in armories and invest them in more and better fighter aircraft—for the Air Force and the Air Guard.

Certainly, the Air Guard must have first-line equipment, if it has a first-line defense role. It has the spirit, the determination, and the ability to put its fighters in the air within minutes—now, when minutes count.

But the Air Guard needs fighters that are faster, fly higher and have the intercept capability that those which they possess—or are scheduled to possess for the next several years—do not have.

Those who have the active air defense mission must knock out any attack that might be launched. "If they fail," General Kenney also said once, "our problems will be solved by Kremlin edict."

The Air Guard's responsibility is great. Its equipment should be equal to that responsibility.—END

SHOOTING THE BREEZE

WITH JOHN F. LOOSBROCK, MANAGING EDITOR, AIR FORCE MAGAZINE

If you have any doubt as to why the Air Force needs the lion's share of defense money, take a look at a recent publication called "Real and Personal Property of the Department of Defense." The Army owns $8.4 billion worth of real estate, the Navy $7.4 billion, the Air Force only $5.7 billion. And even these figures don't represent the true picture. The values represent purchase prices, not present values. Since the older services have been accumulating property for more than 150 years, a good deal of what they own has increased in actual value astronomically. For example, the Army's Governor's Island, in New York Harbor, cost nothing originally. It was given to the government by the state of New York many years ago.

And take a look at respective stockpiles. The Army has a whopping $20.7 billion invested in its supply system, the Navy $17.7 billion, the Air Force only $12.23 billion. The Air Force has a lot of catching up to do.

☆

If you've read the article in *Harper's Magazine* that is highly critical of the new AF Academy curriculum, bear in mind the fact that the author did not visit a single class, did not talk to a single cadet, did not even visit the Academy, although he was invited to do so by the faculty.

This piece of equipment may henceforth be known as a "Darleen Engle" instead of a "Mae West." Darleen, TV and movie actress, was recently elected Miss Air Force Reserve. Among her duties: "To inspire interest in the Air Force Reserve programs." Darleen represents Southern California units, including the 452d Bombardment Wing, commanded by AFA's Board Chairman and past president John Alison. We don't have the weight, but here's the balance—35-23-35.

Community relations at its best. An AF sergeant plays Father Christmas (Santa Claus) in a British Hospital.

☆

Air Force brass who are wrinkling their brows over some touchy community relations problems should take a look at what USAF M/Sgt. Jack Lyons accomplished single-handed while living in the village of Cassington, Oxfordshire, England. Among other things, Lyons raised money for a new church bell, helped the village build a sports pavilion, donated a movie projector to the local church and a projector and screen to the village hospital, worked with local youth groups on a host of projects and made a two-hour color film on life in Cassington. When he left for the States, Lyons, his wife, and twin son and daughter were feted at a farewell banquet in the village hall. The local paper editorialized, "If an American could have been elected mayor of Cassington, the sergeant could have had the job." One of Lyons' outstanding efforts was raising money to provide Christmas cheer for hospitalized children (see cut).

☆

Gen. O. P. Weyland, TAC commander and director of the joint Air Force-Army Exercise "Sagebrush," now going on in Louisiana, told a press conference, "We do not use atomic weapons for massive destruction. It is a tactical weapon for field use, just as selective as the old 'conventional' weapons. It will do a better job against military targets, and will do no greater injury to innocent civilians. Unfortunately, in all wars there are close bystanders who get hit."

"My belief," General Weyland continued, "is that, rather than causing greater loss of life, atomic weapons will bring fewer losses to our own and to enemy troops by reason of wars arriving at a decision more quickly than in the past."

☆

Notes on our new Air Force—A sign in the latrine in the transient quarters at McGuire AFB reads: "Please

(Continued on page 27)

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do not wash diapers in the wash basins. Washing machine available in the basement."

☆

Last month we published an article, "Intelligence for Sale at the Corner Newsstand," which pointed out that our free press made the Russian intelligence job easier than our own. In this issue we reproduce part of a speech by Sen. W. Stuart Symington (see page 36), in which he says (and we agree) that legitimate news is often withheld from the public on security grounds, when the real reason is policy. A recent editorial in the New York *Times* puts the problem in pretty good perspective, we think. We'd like to quote a portion:

"In this era of cold war and cool peace the problem of censorship is vastly complicated by the requirements of national defense. Undoubtedly there have been inexcusable instances of suppression of military information when it was already known to any potential enemy. There certainly are many cases of applying a 'national security' label when no national security is involved at all.

"But there is also a genuine security problem which requires control over the release of some types of information of military value. The Administration has been grappling with that problem, not always with dexterity or good judgment. Censorship or suppression has in many instances spread much too far; but at the same time we can—must not ignore Elmer Davis's admonition . . . that 'with the expanding character of modern administration and the immense variety of modern military affairs . . . quite a number of government departments get hold of information which deserves classification in the interest of national security.'

"It ought not to be beyond the wit of Washington to reconcile the necessities of military security with the requirements of a free press. If exaggerated positions are taken by neither side, this very real problem could be satisfactorily worked out."

Amen, say we.

☆

From where we sit, the many interservice hassles over roles, missions, and the means to carry them out lead inevitably to true unification—a single service.

☆

An editorial in the *Army-Navy-Air Force Journal* points out that the money-savers are still at work in the Pentagon, with family housing and recreation facilities their target. A directive signed by Deputy Secretary of Defense Robertson says:

"Except for projects where design has already advanced to a point permitting early initiation of construction, and where a change at this stage would cause unacceptable delay in fulfilling urgent requirements, appropriated funds will not be applied unless substantial evidence can be presented to show that it is not possible to provide housing under provision of Title VIII of the National Housing Act or other legislative programs . . . It is emphasized that maximum practicable utilization must be made of existing facilities, in order that their full usable life may be obtained without excessive maintenance . . . Improvement projects will be deferred unless actually necessary to carry out assigned missions."

What this means, points out the *Journal*, is "that the housing which the Department told Congress was absolutely necessary and for which Congress appropriated money, will now be administratively deferred and the funds held up as a 'saving.'"

This is the sort of "saving" which we criticized in our October editorial, "Who Has the Power of the Purse?" The money was requested by the Department of Defense, Congress authorized it, but the turnabout Defense Department is going to "save" it by the simple device of not spending. Meanwhile service families will go without their housing, which the average taxpayer innocently assumes he is furnishing. If this is not the kind of "significant change in the level of defense spending" which the Administration assures us is not taking place then we would like a better definition.

☆

No more paylines in MATS. Most MATS airmen get paid by check through the mails.

☆

The Boston *Herald*, which consistently carries the best defense editorials of any daily we've seen, came to the rescue of the Navy in its McDonnell Demon muddle. Said the *Herald*:

"It is right and proper for Congress to look into the failure of the Navy's fighter plane. Perhaps the Congressmen will find just where the program got off the track and recommend procedures for avoiding some future fiasco. But these recommendations should not be such that they will slow down the development of military aircraft. There is no alternative to risk when time is important."

The *Herald*'s point is an important one for the ultimate villain in the McDonnell affair was our pre-Korea state of general unpreparedness.

☆

Latest in the fine series of aviation booklets being prepared by the Materials of Instruction Committee, National Aviation Education Council, is "The Farmer's Wing." It's slanted at children in intermediate grade and secondary school level. Copies may be obtained from NAEC, 1115 17th St., N. W., Washington 6, D. C. Single copies are 50¢; 25-99 copies, 45¢; 100 or more, 35¢ each. —END

AIRMAN'S BOOKSHELF

Only a few outstanding literary works with airpower themes came out of the first half century of powered flight. Now called by some critics the greatest novel in air literature of this period is *Guard of Honor* by James G. Cozzens, a World War II Air Force officer, published about seven years ago by Harcourt, Brace.

But *Guard of Honor* met no appreciable acclaim when it appeared in the military doldrums of the post-war II years. It sold only 15,000 copies. Recognition of its literary stature has evolved slowly, however, and now it is good news to learn that Hollywood is making a film of it. The story is set in the WW II Air Force—a force obsolete by today's standards. One can only speculate what the pen of Jim Cozzens could do with the rich background of modern jet air forces and the men who are pushing the conquest of the air to the edge of outer space.

Of considerably less literary stature than *Guard of Honor* but slated to occupy a niche in modern Air Force fiction is a new novel by the boss of USAF Information Services, Brig. Gen. Robert L. Scott, Jr., *Look of the Eagle* (Dodd, Mead, $3.50)—Scott's fifth book—recalls the flavor that came from the pages of his first success, *God Is My Co-pilot*. *Look of the Eagle* is the story of an Air Force jet pilot, Col. Steve Dallas, to whom life is synonymous with flying.

The urge to fly marks Steve's career from silver wings through the swift decades to the era of the jet fighter, and to Steve, the age of the receding hairline, the graying locks, and the unreliable reflexes. The prospect of finishing his Air Force career behind a desk is a reality Steve faces but cannot understand. And when he gets the chance to lead a gaggle of F-84s on "High Flight West" to Okinawa, his career and those of three of his former WW II AVG buddies rushes towards a strange climax of suspense in the theft of a Russian Type 39 jet bomber from Sinuiju Air Base, near the Yalu River in North Korea.

Look of the Eagle is pleasing reading, a colorful tale of today's jet Air Force. It is especially informative for its jet air jargon, and the thrill of jet flight as told by a man who can authoritatively translate that feeling into articulate prose. Chapter flashbacks into the past help build the characterizations and, most of the time, plot development. But in some cases they slow the reader down. All in all, *Look of the Eagle* is worth-while reading.

Ten years ago historians began piecing together the story of how aviation forced military medicine into a new dimension. A volume just published by the USAF Surgeon General bears the unglamorous title *Medical Support of the AAF in WW II* (Government Printing Office, $7.00). The authors are Drs. Mae Mills Link and Hubert A. Coleman, AF historians. This monumental, 1,027-page history narrates the development of aero-medicine from the early 1900s through WW II. Based almost exclusively on unpublished documents from USAF files, the book is profusely illustrated. Fundamentally a reference work, this book deserves a place on library shelves with the seven-volume Craven and Cate *History of the AAF in WW II*, and will be of special interest to medical men in and out of uniform. Official distribution is limited, but individual copies can be purchased from the Superintendent of Documents, GPO, Washington, D. C.

Beginning next month, "Airman's Bookshelf" will start a series on what is being done to stimulate the writing and publishing of more Air Force books.—END

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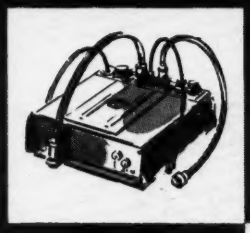

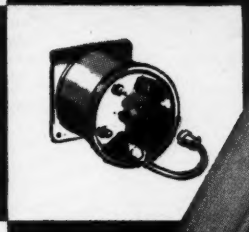

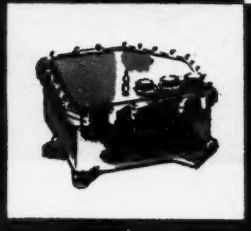

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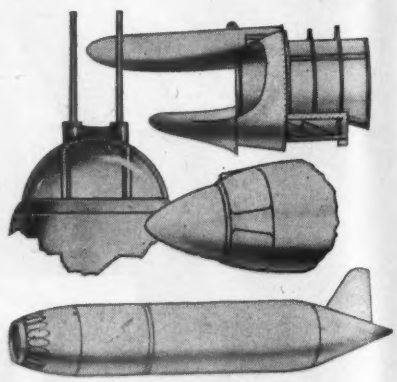

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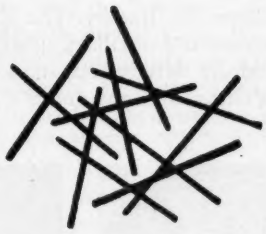
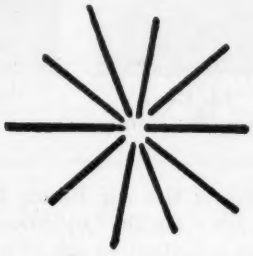


Let's Unscramble Our Unwieldy Pacific Command



By O. K. Armstrong

The Air Force in the Pacific-Far East is split between two joint commands—one Army, the other Navy

LOOK at this big area! Just look at it! Yet if a flap starts, I get my orders from Honolulu!"

It was Brig. Gen. William L. Lee speaking, as we stood before a huge map that almost covered the wall opposite his desk at headquarters of the Thirteenth Air Force, Clark Air Force Base, Philippines. This officer, called with respect and affection by his associates "the toughest man in the Air Force," was using his pipestem as a pointer, aiming at Hawaii over to the east of us, Japan to the north, and back along Korea and down the Asian coast to Okinawa, to Formosa, to Indo-China, and the Philippines.

"Look what a distance we got to defend," he growled. "And at almost any point, hell could break loose any time the enemy wants to start something. Yet Air Force operations are divided right across the middle, between Okinawa and Formosa. If they needed my fighter wing up in Japan, I'd have to go to headquarters in Hawaii to get the order!"

(Continued on following page)

When Bill Lee talks about that Asian area, he's in his own backyard. Aside from Claire Chennault, few American airmen know the Far East region and its problems better than he. Lee was in the Philippines long before World War II, helping General MacArthur beef up the Philippine defense forces. His job was to create an air arm, and he trained the first pilots of what was then the Air Force of the Commonwealth Government.

I heard General Lee's sentiments about the confused operational command in the Pacific-Far East area backed up time and again on a swing that took me into most of the free areas of eastern and southeastern Asia. I talked to scores of Air Force officers in that vast region for which the United States has assumed so heavy a responsibility. Without exception, those I talked with are concerned about what they consider an arbitrary application of the concept of unified command, and an obsolete scheme of control whereby the Air Force within that area finds itself divided geographically.

Many officers of the Army and the Navy agree with them. And let it be understood that no one is beefing from interservice rivalry. These men speak as realists, facing the continuous fact of Communist pressure and the uncertainty of Communist plans for aggression in the future. It is unmistakable that they feel something should be done to bring the Pacific-Far East command up-to-date—and the quicker the better.

To get the true picture, let us fill in that map of General Lee's, with the US military power it represents:

Sitting at Pearl Harbor, Hawaii, we have CINCPAC—Commander-in-Chief, Pacific. That's four-star Adm. Felix B. Stump. He wears another big hat—pardon, cap—besides commander of the big theater: He is also commander of PACFLT—the Pacific Fleet. Under the Chief of Naval Operations and the Joint Chiefs of Staff, the admiral's geographical authority extends over the Pacific Ocean until it hits land. Then it stays south of that line drawn between Okinawa and Formosa.

Functionally, CINCPAC's lines of command go to the Philippines Defense, the Southeast Asia Defense, the Formosa Defense, Marianas and Bonin Island Defense, and the atomic energy activities at Eniwetok. Also, through the Pacific Fleet to Fleet Logistics Wing, Alameda, Calif.; Naval Air Pacific and Amphibious Force Pacific, San Diego, Calif.; the First Fleet, the Marine Force Pacific, the Fleet Marine Force, Marine Aviation, Pacific Submarine Command, at Pearl Harbor; the Navy Command, Philippines, and the civilian defense forces of the area.

Under the Pacific command also are the US Army, Pacific, with its Hawaiian Defense, and the Joint Military Assistance Advisory groups for the Philippines, Formosa, Indo-China, and Thailand.

Now we go out to Tokyo, to the headquarters of the geographical section north of the line which cuts below Okinawa, and we find CINCFE—Commander-in-Chief, Far East, who currently is Gen. Lyman L. Lemnitzer, US Army. He receives his orders from the Joint Chiefs of Staff, through the Department of the Army, and his lines of unified command for the Army and Navy include the ground forces of Japan and Korea; and the Navy, Far East.

The Divided Air Force

Where does this leave the Air Force in the Pacific-Far East? You guessed it—divided between the two commands.

Ranking officer is Gen. Laurence S. Kuter, commanding the Far East Air Force, under General Lemnitzer's unified command in Japan, Korea, and Okinawa. Principal unit is the powerful Fifth Air Force, largest in the service, commanded by Lt. Gen. Roger M. Ramey. The Fifth has five air divisions, many combat and auxiliary groups. Actually, it is both a tactical and air defense command rolled into one, protecting an area larger than the entire United States.

Brig. Gen. William L. Lee

Adm. Felix B. Stump

Gen. Lyman L. Lemnitzer

Gen. Laurence S. Kuter

Lt. Gen. Roger M. Ramey

Maj. Gen. Sory Smith

Under Admiral Stump is the Air Force, Pacific, commanded by Maj. Gen. Sory Smith. Organized on July 1, 1954, his command does a continuous job of war planning, and maintains operational units that are little better than skeletons of the real thing that would come very much alive if an emergency arose: The Seventh Air Force at Wheeler Field; the Thirteenth Air Force at the Philippines (Lee's); the units on Formosa, under command of Brig. Gen. Benjamin O. Davis, Jr., and the auxiliary units of the area.

"Actually, this arrangement is just a holdover from World War II days," declared a veteran Air Force officer, who had plenty of experience in both that war and the Korean fracas. "It's the old General MacArthur-Admiral Nimitz concept. The Army for the land, and the Navy for the water. They seem to forget that the air covers both land and water!"

It will be remembered that in those World War II days, as MacArthur was leading the victorious US and allied offensive back to the Philippines, on to Okinawa and to Japan, his air support was called Far East Air Forces. The Army Air Force units supporting the naval commanders were called Air Forces, Pacific Ocean Area. We were still in the day when the air arm was an auxiliary of the ground troops and the fleets.

The B-29, with its long-range, over-water capabilities, rendered that idea obsolete. To solve the problem of area control between Army and Navy, the strategic air units of 1944-1945 operated directly under the Joint Chiefs of Staff.

In ten years' time, the whole concept of warfare has changed. Today nuclear weapons are the most important factor in all military planning. Translated into plain factual

terms, the next war, if any, will be an atomic war, in which the airplane carrying nuclear weapons will be the decisive arm.

Going back to General Lee's map, and looking at that huge triangle stretching from Hawaii to Japan to the Philippines, we are struck with the importance of this vast area in the defense of the United States and the Free World. In the area and its neighboring Thailand, Burma, and India live half the people of the globe. Nothing has happened at any time in the last ten years to indicate any change in the Soviet policy of world domination through Asia. The aggressions in China, Korea, and Indo-China have only confirmed the plan.

Red Air Strong in Asia

No one can read the scheming minds of the Communist leaders in Moscow and Peiping, but the fact remains that one-third of the Communist's air strength has been moved into Asia. Pentagon intelligence tells us that much of this power has gradually been shifted southward from Manchuria and North Korea.

In the office of Nationalist China's minister of defense in Taipeh, I was shown aerial photos, some of them taken personally by rugged General "Tiger" Wang, of new airfields opposite Quemoy, Matsu, and other coastal areas across from Formosa. A whole chain of these Russian-built strips, capable of handling the fastest jet fighters and the biggest bombers, now lines the east coast of the mainland of China.

"Such a shift would support any Communist program to 'liberate' Formosa," declared Col. James T. Stewart, FEAF Assistant Deputy for Operations, at a military briefing for American news writers which was held in Tokyo last July.

Colonel Stewart estimated that the steady build-up of Communist airpower in recent years has resulted in a Red air strength in the Far East of approximately 8,000 aircraft —against which the US Air Force, incidentally, has in this area less than 2,000 planes.

"No one in his right mind can doubt that if trouble starts, it will be the Air Force that will receive the first blow and will be forced to strike the first blows in return," Maj. Gen. Hunter Harris, Jr., FEAF Deputy for Operations, told me. "In the military airplane, we have a weapon not limited to any geographical boundaries."

To get the reaction of the Department of Defense to the matter, I went to the office of that excellent spokesman for American fighting forces, Adm. Arthur W. Radford, chairman of the Joint Chiefs of Staff. His director for public relations, Col. C. E. Hutchin, referred to a recent statement of the admiral's:

"We have unified or joint commands in every important strategic area overseas into which US forces have been deployed. . . . Actually, they don't have operational-area delineations until it is necessary to make them. Instead, they have forces and missions. They do have area delineations for certain specified functions."

In fairness to all involved, I should point out that no officer I talked with had any quarrel with unified commands as such, and their functioning by forces and missions. From the Air Force officers I heard nothing but praise for Admiral Stump, General Lemnitzer, and their predecessors in the two commands. As one officer expressed it:

"We don't mind taking orders from an admiral or an Army general. But we cannot see the wisdom of creating a geographical 'mission' bounded on the north by Formosa,

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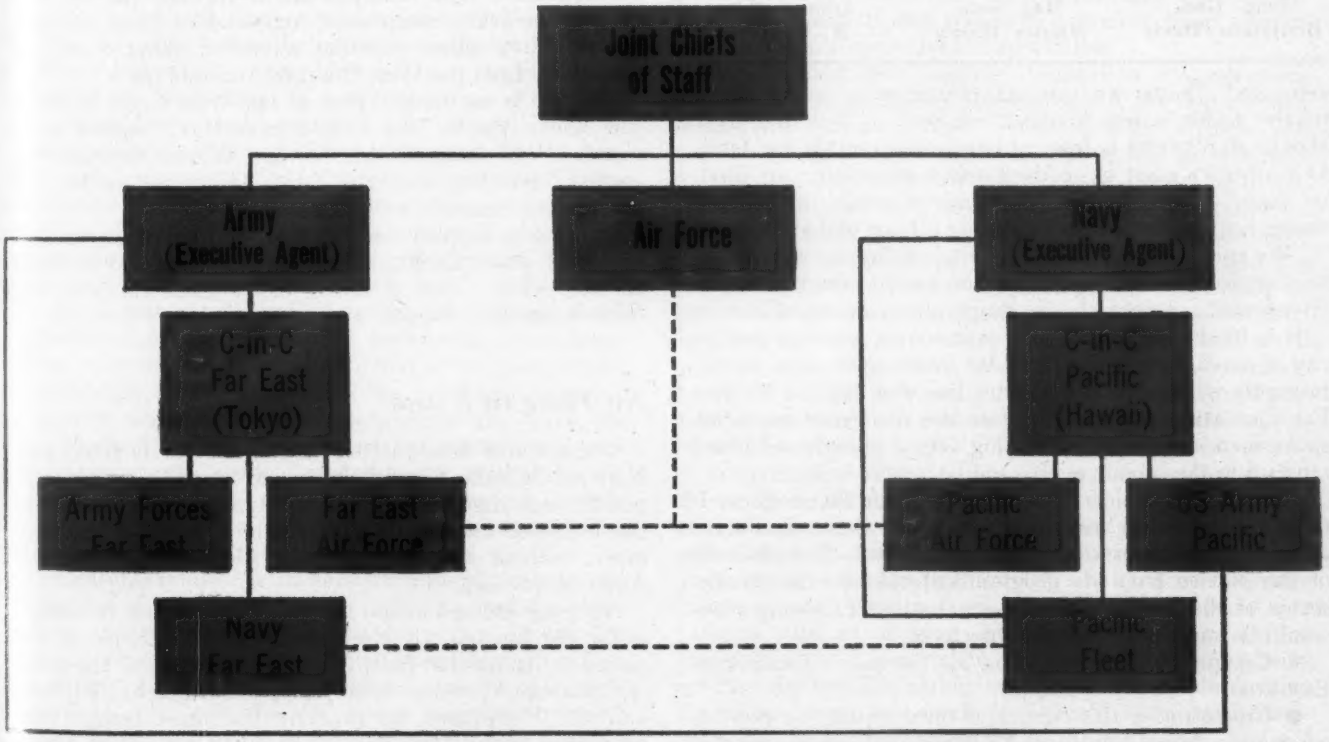


Here's how the Air Force in the Pacific-Far East is split, with the Far East Air Force operating under the Army's General Lyman L. Lemnitzer in Tokyo and the Pacific Air Force under the Navy's Admiral Felix B. Stump in Honolulu.

and having to look to a commander-in-chief in Hawaii when we know darn well trouble is likely to break out at any point from Korea to Viet Nam."

As examples of the confused command situation that exists, Air Force officers point out that Maj. Gen. Sory Smith's Hawaiian Air Force Command comes under General Kuter at FEAF for logistics and certain administrative matters, but for operations affecting the Pacific area it comes under Admiral Stump. The B-36 bombers located on Guam are directly under orders of the Strategic Air Command as is the Guam base itself.

"Operational control in the Pacific-Far East comes under commanders who are highly trained in either Army or Navy tactics and functions but know little about the Air Force," explained an experienced AF commander. "So we must assign to them the Air Force personnel necessary to inform them constantly as to the place of airpower in their own commands. Here is a needless duplication of effort."

Clearance to Operate

Most severe criticism, perhaps, of the geographically divided command stems from the requirement that units of the Air Force must get clearance to operate from the area of one command to the other.

"Imagine that—in this atomic age!" an Air Force colonel remarked. "Sure, we can get clearance within a day—maybe within a few hours, if we rush it. But if trouble should start, even a few minutes' delay might be fatal. Our air units must be ready to move anywhere, any time, on plans approved far in advance, whether the trouble comes from a limited aggression or all-out global warfare.

"We could not afford one minute's delay to unscramble who's going to command what. You can be certain that the enemy will not respect any geographical divisions!"

Brig. Gen. Benjamin Davis

Maj. Gen. Hunter Harris

Adm. Arthur W. Radford

It is freely admitted that if war comes, the very necessity of unified control within Air Force operations would promptly wipe out the boundary line dividing the Pacific-Far East areas. Why not, argues the Air Force unofficial spokesmen, do it now and bring future operational planning up to the atomic age?

The solution is clear. Not one single Air Force officer I talked to, whatever his rank, but agreed there should be some reorganization which would unshackle their branch of the service from its geographical split in the Pacific sector of the globe. Most agreed that the following plan would be most practical and effective:

- Create a unified command for the entire Pacific-Far East area.
- Create under this command three equal, component commands, Army, Navy and Air Force, each possessing the theater forces of their respective services.

Each service would cover the respective armed forces for the entire area. Each component commander would be responsible for the operations of his unit, coordinated with the operations of the other two for complete defense of the area and offensive action if required. The Joint Coordinating Boards of the present separate commands in Tokyo and Hawaii would merge for the unified command.

Commanders of each component service would be equal in authority over their commands, and equal in rank. General Lemnitzer, Admiral Stump and General Kuter are all four-star rank. Certainly under the reorganization, the commands would warrant this rank.

Under this arrangement, the office of Commander-in-Chief, Pacific-Far East, might well rotate among the three services. He would be the liaison between Washington and the area. He would stand between the Joint Chiefs of Staff and the service commanders.

Logical Headquarters

What bases should serve as headquarters for the unified command and for each of the service commands? That is top-level policy, of course. But as a matter of speculation, Hawaii seems the logical headquarters for the new Commander-in-Chief, Pacific-Far East.

Japan and Korea are the areas for the greatest share of land forces operations, and will likely continue so for some years to come. Therefore, Tokyo would remain the headquarters for the Army, at least until the gradual phasing out from Japan makes another site more feasible.

Okinawa is for all intents and purposes the center of air operations in the area, and would become the logical headquarters for the entire Pacific-Far East.

Because of the unmatched naval facilities of Pearl Harbor, that base would likely remain the headquarters for the Navy component.

There are some who will give you an argument as to locating the unified headquarters at Hawaii, and for that matter, the Navy component command at Pearl Harbor. An old Navy officer who has served in about every US naval base from the West Coast to Asia told me:

"Hawaii is an integral part of our West Coast defense. The whole Pacific area should have three unified commands: West Coast-Hawaii for one, Alaska-Aleutians for another, and Far East the third. Headquarters for the latter should move over to Guam."

Those who support this detail of the plan point out that it is only about 2,000 miles from San Francisco to Pearl Harbor, while Guam is nearly 3,000 miles closer to the Asian coast than Hawaii.

No Time to Waste

Locations of headquarters can be left to Defense and National Security Council decisions. Immediate task is to put through the needed reorganization, putting an end to the confused commands and having everything ready to move, without one minute's delay, if trouble starts in the Asian powderkeg.

No congressional action is necessary. All that is needed is for the top officials entrusted with the defense of the nation to realize that from Guam westward to all the areas of Communist pressure from Japan and Korea to Viet Nam and the Philippines, no dividing line must hamper the operations of the Air Force. No obsolete concept of Army-Navy control should set artificial boundaries for the military airplane.—END

A guest editorial

LACK OF REAL UNIFICATION is still costing us MONEY

THERE is something deeply discouraging in the news that the Army and Air Force are again at odds over the matter of aircraft support for troops. The Army, trying to achieve the mobility that is vital in modern warfare, complains that the Air Force is so preoccupied with supersonic jets and atom bomb carriers that it is neglecting the less glamorous but equally important function of moving ground troops by plane.

At present, the Air Force has thirteen troop-carrying wings, and the Army had hoped that this would be increased to seventeen wings by 1957. But recent cuts in defense spending have forced the Air Force to curtail its expansion plans, and the troop-carrying wings will soon be reduced to eleven.

This is not the only interservice dispute over aircraft to arise in recent months. Last week the Navy lashed out at Air Force plans to take over the Navy's new jet-powered seaplane, which has as much speed and range as most land-based medium bombers. The Navy contends, and with some justification, that operations of water-borne craft is the Navy's job, and that the Air Force should not attempt to duplicate the bases and tenders necessary to maintenance and operation of seaplanes.

The depressing aspect of these disputes is heightened by the fact that it was just ten years ago this month that Congress, reacting to the lessons of World War II, undertook a unification of the armed forces that was designed to put an end to all interservice rivalries, differences and disputes. To what extent the unification attempt has been a failure, and whether the failure lies in legislative or human frailty are matters of wide disagreement. But the unavoidable fact is that unification has not unified.

Interservice rivalries and disputes continue. The services differ widely on matters of strategy and priorities. There has been no effective coordination of training or manpower utilization. There is still no real unification of purchasing, and coordination of all service and governmental hospital programs is still a pipe dream.

Some of this can be traced to the weaknesses of the Unification Act, which depended for success on an interservice agreement and cooperation that never materialized. By separating the Air Force from the Army and by giving the Marine Corps semi-independence from the Navy, the law actually disunified the services by creating four contenders where only two had existed before. And the subsequent Unification Act of 1947, by staking out specific areas of supremacy for each service, only made sure that the contention would grow.

The natural reluctance of generals and admirals to curtail the size or scope of their own authority, and the often-unpleasant experiences of the services in the Korean war have not helped to weld the services more closely together. During the Korean fighting, soldiers and Marines complained bitterly that the Air Force neglected close-air support for ground troops in favor of interdiction bombing that was designed to shut off the enemy's supplies and isolate him on the battlefield.

Editor's Note:

This editorial is reprinted by permission of the Louisville Courier-Journal *where it appeared on October 19, 1955. It focuses on what is bound to become an increasingly serious problem in our present military structure. If the services themselves do not take the initiative in this matter, perhaps public pressure will turn the trick.*

The Navy saw in the Army's plight added proof of its argument that each service needed its own available airpower if it hoped to maintain men in the field under modern wartime conditions. And the entire Korean experience, which showed so clearly the importance of interservice cooperation, gave impetus, curiously enough, to increased inter-service rivalry in the matter of weapons.

Today every service has its own air arm, chiefly because there is no agreement, either in the field or in the Pentagon, on the matter of priority. The Air Force, charged with continental defense and atomic retaliation in the event of attack, feels it must give a lesser rating to troop support and transport. The Army is training its own air observers and spotters in what amounts to an Army Air Corps.

The Navy maintains its own air army on the grounds that it cannot operate without the air defense and striking power that the Air Force cannot provide. The Marine Corps maintains its own planes to give close troop support and for troop rescue and transportation.

To an extent, this seeming duplication is understandable, and even excusable, for airpower is the one element in modern warfare without which no other element can operate safely, and it can well be argued that no one service should have exclusive control over a weapon to the detriment of other services. There is no excuse, however, for the consistent failure of the services to cooperate more fully in the matter of purchasing, medical care and the use of manpower. No serious attempt has been made to coordinate the many duplicating and costly governmental hospitals systems, and empty service hospitals still stand within a few miles of overflowing Veterans Administration hospitals, and the services still continue to build and maintain hospitals for their own use without regard for the overall service needs.

Congressional investigations last year also showed that the services still buy independently of each other, often competing with each other for scarce materials, stockpiling goods that other services have in surplus and paying varying prices for identical articles. The services still maintain separate recruiting offices and separate manpower policies. And all of these things waste money as well as manpower. At a time when the defense budget is being studied for possible reductions, we waste on duplicating functions money that could buy planes or tanks. Perhaps now, on the tenth anniversary of the unification that did not unify, we should again consider what real unification offers.—END

Silent Curtain

By Sen. W. Stuart Symington

ON MARCH 5, 1946, at Fulton, (Mo.), Winston Churchill made his prophetic speech of warning, a speech immortalized by the first use of the phrase "Iron Curtain."

I want to talk about the development of another curtain. It might well be called "The Silent Curtain"—and it might be an equally dangerous, though not so dramatic, threat to our way of life.

The Silent Curtain has grown rapidly in recent years. It is being woven by administrative orders. It is the result of bureaucratic censorship, an increasing tendency to hide from the American people facts they should know about our nation's *relative* military strength, about governmental operations, about waste and errors.

To combat the dangers of this "Silent Curtain," we must understand not only what has happened, but also why, and what the effects have been. . . .

In the field of defense, including weapons development, the American people have the right to know every bit of information that will not aid a possible enemy. The hydrogen era is no time for soothing syrup statements of partial truths. An uninformed people at peace today may be destroyed by surprise attack tomorrow.

On March 1, 1954, following the Bikini H-Bomb tests, the Atomic Energy Commission issued a statement on the range and effects of the blast. The statement was phrased in a manner intended to reassure an apprehensive American public. It did not give the facts as to the incredibly terrible potential of this new weapon.

On February 19, nearly a year later, Stewart and Joseph Alsop, famous Washington newsmen, wrote in the *Saturday Evening Post:*

"The facts about the H-bomb that are really needed to insure a realistic and informed public opinion, are precisely the facts about the H-bomb that the enemy knows already. Our Government has sought to hide the bomb's real power, the extent and effects of its noxious fall-out of radioactive particles, and the degree to which it may create an enduring radiological hazard in the air we breathe. Thus our government has hidden from our people essential information that is wholly familiar to the masters of the Kremlin, who also have their H-bomb."

After this statement was published, the AEC issued an additional press release, revealing part of the truth about the H-bomb. Only then did we discover the government had withheld the following facts:

The Bikini blast itself was far more powerful than the scientists had expected.

The H-bomb fall-out was as deadly as the blast itself.

The fall-out could contaminate an area the size of the entire state of New Jersey.

Under such conditions, our current Civil Defense program was virtually worthless.

The Soviet Union knew these facts.

The American people did not.

According to our scientists, even the latest fall-out report still does not tell the story as it should be told, without endangering our national security.

Further indications of continuing and unnecessary secrecy about this new weapon were made public in September.

Professor Hermann J. Muller, Nobel prize-winning geneticist and the world's leading authority on the effects of radiation on heredity, was barred by the Atomic Energy Commission from reading a paper, or participating in discussions, at the recent Geneva "Atoms for Peace" Conference.

The title of Professor Muller's proposed paper was "How Radiation Changes the Genetic Constitution."

Apparently Professor Muller was barred because he openly criticized the Atomic Energy Commission statement that no genetic damage has thus far resulted from atomic explosion radiation.

If this great scientist has such additional information about these new weapons, should he be muffled by some official who thinks the information might be untimely"?

As I have said many times in recent years, official statements have misled and are misleading the American people as to our country's *relative* military strength against that of the possible enemy.

The fact we are stronger than ever before in peace time means exactly nothing. Relative strength is all that counts. Anything else has exactly the value of the second best poker hand.

Just this past summer, the Secretary of Defense issued a directive and supplementary memorandum, stating that in the future no news should be given out from the defense Department unless it was in accordance with policy, timely, constructive, and proper.

Any "mistake" is neither timely, constructive, nor proper. In the future, therefore, unless information suits the purposes of the Department, and won't lead to possible criticism, it may well not be released.

The story of the fiasco of these jet engines at McDonnell Aircraft in St. Louis was successfully withheld from the public over a long period. It was finally released as the result of the work of some enterprising reporters.

The American press, by insisting on the people's right to know, are performing a most necessary public service.

America will continue a free nation only so long as all newspapers, and other mass communication media are able to give the people of America the truth. . . .

[The Chairman] of the Freedom of Information Committee of the American Society of Newspaper Editors . . . could not have been more right when he said:

"The acts and judgments of those who are fully informed are their own acts. The acts and judgments of those who are only partly informed are, in reality, the act and judgments of those who partly inform them.

"History does not record a free government that was secret or a secret government that was free. So those who defended the right to know, in a practical way are defending freedom and self-government.

"Both are threatened in our generation. They have been threatened seriously since World War I." . . .

Let's each and every one of us pledge ourselves to try to tear down any "Silent Curtain" of censorship, whenever there is an effort to draw it around governmental activities which should be made known to the people.

Let the people have the truth; and they will do whatever is necessary to remain free.—END

This article is from an address made October 12, 1955, by Sen. W. Stuart Symington (D.-Mo.) at the centennial celebration of the Mexico Ledger, *Mexico, Mo. Before entering the US Senate, Mr. Symington was AF Secretary.*

Night after night the big birds zeroed in on targets from Los Angeles to Spokane. And when it was over, the Air Force's confidence in the precision bombing capability of the B-47 had at last been fully vindicated . . .

Just before take-off — 442d Bomb Squadron's Maj. Courtland C. Moore, pilot; Maj. Henry J. Latimore, A/C commander; and Maj. Farris A. Turner, observer.

The SAC World Series

By Ed Mack Miller

IT WAS four minutes before four o'clock Monday afternoon, August 22.

Through the green plastic visor on his hardhat, Maj. Wallace C. Hynds squinted as he searched the late afternoon coast haze for the field, wondering how many other planes were already on the ground.

Then a sparkle of sun twinkled from the valley. That would be the B-47s

(Continued on following page)

Many said that the speedy B-47 couldn't be as accurate as the slower, steadier B-36.

and the KC-97 tankers on the ramp; the larger, rectangular reflections would be hangar roofs.

Within seconds the '47 was smoking down across the field. Major Hynds, the aircraft commander, made a neat, tight pattern and the plane kissed the California earth with only a routine yelp from the tires. The dragchute flared and then Hynds was baby-buggying his bomber onto the hardstand behind the pert little yellow "follow-me."

Parked on Line G, Hynds cut the engines, and the bagpipe skirl of the jet sound spiralled down to silence. He took off his hardhat and massaged his tired scalp. In the copilot's office, Capt. Russell S. Keney was doing the same. So was the observer down front, Maj. John D. Longhill.

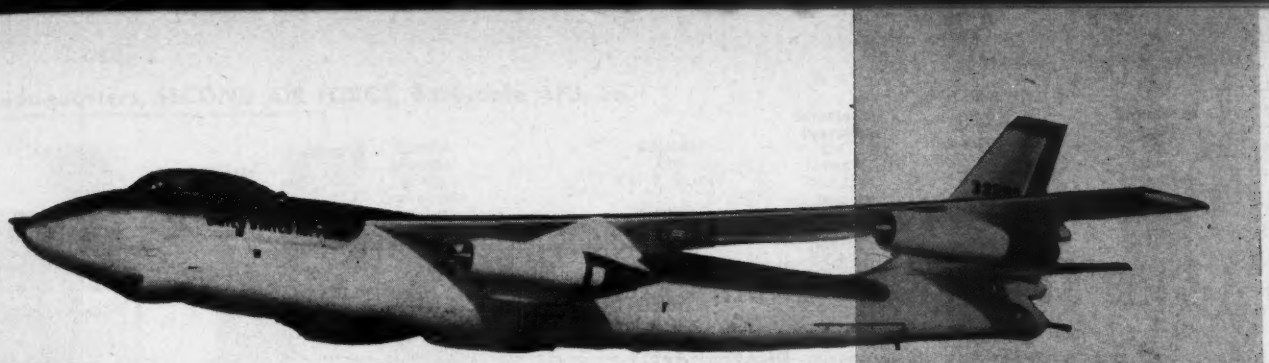
A crowd was swarming to the aircraft as Major Hynds took out the Form One. After the word "From" he wrote: "MacDill." After the word "To" he wrote: "March." Then he wrote in the take-off and landing times, signed the flight off, and climbed down through the hatch to meet the people.

The winning crew in the B-47 division of the 1954 Strategic Air Command Bombing and Navigation Competition had returned to defend its crown.

Lt. Col. Horace Traylor (holding Over-all Best Crew trophy); Lt. Col. Martin S. Speiser (individual trophies); and Lt. Col. Jose Holguin (Best B-47 Crew trophy).

Major Traylor, pilot, (left) and Major Speiser, copilot, preflight their B-47 before final mission.

Major Holguin, observer, makes a last-minute target study while the pilots preflight their B-47.



This year, in the seventh year of competition, the B-47s came into their own.

They came from all over—Biggs, Altus, Walker, Castle, Mountain Home, Hunter, Pinecastle, Lake Charles, Barksdale, MacDill, Sedalia, Smoky Hill, Lincoln, Davis-Monthan. One outfit had flown over from England for the event. Some bore the names of cities, others the SAC crest (a mailed fist holding lightning bolts and an olive branch) on their silver flanks.

They came like great, droop-winged gulls into the Santa Ana Valley, gliding past the sentinel peaks named San Antonio, San Gorgonio, and San Jacinto. In each plane was a three-man crew, picked to represent an entire SAC wing in the meet.

And, far to the north, like giant whooping cranes, SAC's "big birds," the B-36s, were crossing the Grand Coulee, the Huckleberry Mountains, or the lake called Coeur d'Alene, converging on Spokane as the B-47s were converging on Riverside. For the "heavies" would operate out of Fairchild Air Force Base and the "mediums" out of March—but both would be after the same objective—to become the top bombing team in SAC.

The playing field would be half a continent, and the pitchers would be lobbing their curves down from the stars. It was no place for the bushers; the cream of SACdom was on display. These were the boys who said they could hit a corner mailbox with a postcard from 40,000 feet. Cool customers, these men. The best in the world at their trade. It would be interesting to see if the B-47s could beat the B-36s this year. Small chance, though; the lumbering '36 was too slow, too steady a platform for the streaking Stratojet to compete with.

Or was it?

* * *

In an apartment near March Air Force Base, Mrs. Yvonne Roller was hoping that the baby wouldn't be born until after the SAC "World Series," so that Joe could be with her. Of course, he could get off, but she didn't want that. Joe had wanted desperately to be picked to crew one of the '47s in the meet. And he had. Like the other men of SAC, A/2C Joe Roller of the 442d Bomb Squadron, 320th Wing, based at March, wanted his team to win the coveted Muir S. Fairchild trophy.

It was a matter of pride with Joe—pride in his outfit.

It was also a matter of pride with Mrs. Roller. She didn't want to let her husband down.

"Just one more week," she whispered, crossing her fingers. "Just one more week."

* * *

In his room at the Mission Inn in Riverside, Calif., Maj. Jose Holguin of the 93d Bomb Wing, Castle Air Force Base, Merced, Calif., was thinking.

People who know Jose Holguin, the Spaniard from Santa Ana with the El Greco eyes, say he can out-think anyone in the world when it comes to nav-bomb problems.

(Continued on page 42)

TOP: Pilot, Maj. Horace Traylor.

CENTER: Copilot, Maj. Martin Speiser.

BOTTOM: Observer, Maj. J. Holguin.

Discussing final results with winning crew are Col. S. J. Byerley, far left, and Col. P. D. Fleming, right.

The Strategic Air Command

An AIR FORCE Magazine Photochart

Headquarters
Strategic Air Command
Offutt AFB, Neb.

1 **Commander in Chief**
Gen. Curtis E. LeMay

2 **Special Assistant to the Commander in Chief**
Col. Reade F. Tilley

3 **Judge Advocate**
Col.
Robert R. Dickey

4 **Vice Commander**
Maj. Gen.
Francis H. Griswold

5 **Chief of Staff**
Brig. Gen.
Richard M. Montgomery

6 **Air Surgeon**
Brig. Gen.
Loyd E. Griffis

7 **Inspector General**
Brig. Gen.
David Wade

8 **Adjutant General**
Col. James H. S Rasmussen

9 **Operations Analysis**
Dr Rodney H. Smith

10 **Staff Chaplain**
Col.
Charles W. Marteney

11 **Chief Scientist**
Mr. Carroll L. Zimmerman

12 **Director of Plans**
Maj. Gen.
John P. McConnell

13 **Director of Materiel**
Brig. Gen.
Charles J. Bondley, Jr.

14 **Director of Operations**
Maj. Gen.
Robert H. Terrill

15 **Director of Intelligence**
Col. Robert N. Smith

16 **Director of Personnel**
Brig. Gen.
Horace M. Wade

17 **Comptroller**
Brig. Gen.
Norman D. Sillin

Corrected as of November 1, 1955

Headquarters, SECOND AIR FORCE, Barksdale AFB, La.

19
Judge Advocate
Col.
George K. Hughel

22
Special Assistant to the Commander
Lt. Col.
John P. Spaulding

Adjutant
Col.
Carl J. Stumpf

25

Director of Operations
Col.
James H. Thompson

26

Director of Materiel
Col.
Jacob J. Brogger

28

Director of Plans
Col.
John A. DesPortes

30

18
Commander
Maj. Gen.
Frank A. Armstrong, Jr

21
Deputy Commander
Brig. Gen.
George W. Mundy

24
Chief of Staff
Col.
William B. Offutt

Commander
Brig. Gen.
Nils O. Ohman

32

27
Comptroller
Col. Ray Mills

29
Director of Personnel
Col.
Edward P. Russell

31
Director of Intelligence
Col.
James M. Winterbottom

20
Inspector General
Col.
Robert L. Snider

23
Surgeon
Col.
William F. Patient

Headquarters, THIRD AIR DIVISION, Guam, Marianas Islands

Headquarters, EIGHTH AIR FORCE, Westover AFB, Mass.

34
Judge Advocate
Lt. Col.
Herman W. Ford

37
Special Assistant to the Commander
Col
Peter W. Agnell

Adjutant
Col.
William G. Booth

40

Director of Operations
Col.
Harold E. Humfeld

41

Director of Materiel
Col.
William H. Reddell

43

Director of Plans
Col.
Jay P. Thomas

45

33
Commander
Maj. Gen.
Walter C. Sweeney, Jr.

36
Deputy Commander
Maj. Gen.
James C. Selser, Jr

39
Chief of Staff
Col.
David A. Burchinal

Commander
Brig. Gen.
Joseph J. Nazzaro

47

42
Comptroller
Col.
Elkins Read, Jr.

44
Director of Personnel
Col.
Charles A. Dunn

46
Director of Intelligence
Col.
Rocky Triantafellu

35
Inspector General
Col.
Wilson R Wood

38
Surgeon
Col.
Alonzo A. Towner

Headquarters, FIFTH AIR DIVISION, Sidi Slimane, French Morocco

Headquarters, FIFTEENTH AIR FORCE, March AFB, Calif.

49
Judge Advocate
Col.
Donald S. Dundas

52
Special Assistant to the Commander
Lt. Col.
Lee R. Williams

Adjutant General
Lt. Col.
Edolyne J. Reynolds

55

Director of Operations
Col.
William J. Crumm

56

Director of Materiel
Col.
James C. Owen

58

Director of Plans
Lt. Col.
Mason A. Dula

60

48
Commander
Maj. Gen.
Archie J. Old, Jr

51
Deputy Commander
Maj. Gen.
Henry K. Mooney

54
Chief of Staff
Brig. Gen.
Walter E. Arnold

57
Comptroller
Col.
George A. Lawson

59
Director of Personnel
Col.
Edward D. Edwards

61
Director of Intelligence
Col.
Harry O. Patteson

50
Inspector General
Col.
Thomas G. Netcher

53
Surgeon
Col.
Richard L. Bohannon

62

Headquarters, SEVENTH AIR DIVISION, South Ruislip, England

Commander
Brig. Gen. James H. Walsh

The reliable old B-36 was outclassed this year by the speedy B-47, proving that the high-speed, high-altitude jets are here to stay.

"If the Air Force doesn't give Jose the right instruments," they say, "Jose builds his own. In fact, the B-47s and '52s carry as standard equipment right now some of Jose's Rube Goldberg inventions."

"Jose," people in SAC agree, "is an awfully sharp guy, especially when he's riding on his K-system (B-47 bombing equipment)."

But tonight Jose Holguin wasn't thinking about what people said, or even about the fact that General Eubank had held him at Castle for an extra fifteen days so he could compete in the World Series before being transferred to SAC headquarters at Offutt.

He was—let's face it—thinking about business—about his target study, about trial distances and wind determination settings; about direct or offset runs; about umpires who always managed to get in your way just as you were making a quick and difficult computation.

It would take a little luck, too, to keep the weather and the winds right, to keep the equipment functioning perfectly. There were lots of things....

* * *

Some people call it the "Pickle Barrel Derby" because of SAC's so-called ability to hit a pickle barrel from any altitude. Other people call it the "Battle of the Baseball Caps" because every team tries to come up with a gaudier headpiece than the next guy.

But to the pilots, observers, and maintenance men of SAC, it is the annual chance for a taste of fame (and maybe a promotion).

This year's competition was the seventh. In the initial get-together, in 1948, each competing crew dropped three bombs visually and three using radar, all runs being made at 25,000 feet. Crews from the Eighth Air Force swept the first five places that first year.

In 1949 SAC headquarters increased the number of practice bomb drops, with special emphasis on radar bombing. By the time the '49 meet rolled around, the B-50 and B-36 outfits were getting pretty sharp at scope bombing. In this meet the Eighth Air Force won second, third, and fourth spots, being topped only by the first-place 93d Group of the 15th Air Force.

In 1950 the Korean war forced postponement of the bomb-nav competition, but it was resumed in 1951 with the addition of reconnaissance wings to emphasize the importance of celestial navigation. For the first time the Muir S. Fairchild trophy, a heroic-size quadruple silver plate punch bowl on a big mahogany base (the trophy weighs just a little less than the average B-47 crew member) was offered by the Hughes Aircraft Company in honor of the late General Fairchild, former Vice Chief of Staff of the USAF.

The 97th Bomb Wing won the trophy in 1951 and came back in 1952 to split top honors with the 93d, each wing getting to hold the trophy for six months.

In 1953 the trophy went to the 92d Wing, as bombing accuracy steadily

A 22d Bomb Wing Crew changes an engine on one of the competing B-47s.

improved, showing the wisdom of intra-command competition.

The B-47s went to Barksdale AFB, Shreveport, La., for the 1954 "series" and the conventional types operated out of Walker AFB, Roswell, N. Mex., in a meet that SAC brass hoped would see the all-jet B-47 come into its own as a solid winner. Their hopes were predicated, of course, not on any bias against the faithful old B-36 but on the realization that the high-speed, high-altitude jet was here to stay . . . and it was up to the technicians to learn how to bomb from it.

First-place trophy for crew bombing in 1954, however, went to a B-36 crew of the 95th, and the crew navigation contest ended in a tie between crews of the 28th Strategic Reconnaissance Wing and the 92d Bomb Wing. The combined navigation and bombing trophy was awarded to a crew of the 11th Bomb Wing (B-36), and the wing bombing award went to two crews of the 7th Bomb Wing.

The 11th also won the crew and wing class competition for the heavies, and the outstanding B-47 wing was the 305th, which won both the wing and crew class awards. In the B-50 crew class competition the 97th Bomb Wing took the crew and class awards.

Tops over-all was the 11th Wing, which won the Fairchild trophy and dimmed the hopes of the B-47 jockeys for another year. Again the navigation scores were the best in history, but the B-47 hadn't topped the scores of the slow and reliable Baker 36.

"How can they miss, going as slow as they are?" was the gripe of the Stratojet crews. "Yeah, and look at all the guys they have on board to run errands, shoot fixes, and so on, and so on," was the standard reply.

The 320th Bomb Wing, represented by Col. Ernest Eddy, receives the Fairchild Trophy from Gen. Curtis LeMay.

To which ribbing the B-36 crews would smugly reply: "Some have it and some don't."

* * *

On Wednesday, August 25, 1955, the Seventh Annual Bomb-Nav Meet began at March and Fairchild Air Force Bases.

Sixty-six SAC crews—the best men in the profession—had been brought together at the two bases, forty-six Stratojet teams at March, the rest at Spokane. The heavy bomber crews would fly three 2,210 nautical-mile missions while the jet-bomber crews would fly three 2,580 nautical-mile round-robins. Although the B-47s had much farther to fly, they would complete their trips in about six and a half hours; the slower B-36s would take nine and a half hours for their sorties. Both would be flying at altitudes above 30,000 feet.

Scheduling for each competing crew included three of the round-robin trips on alternate nights, with each crew being scored on the best four of six scheduled radar runs on Radar Bomb Scoring targets, the best two of three scheduled "free style" runs on the same targets (in "free style" the "bombs" are dropped either by radar or visually by use of optics, *i.e.*, the Norden bombsight), and—for navigation legs.

Just before sunset the B-47s would take off from March to "free-style" bomb Sacramento while there was still light. From there they would fly to Crater Lake, Ore., and start their bomb run at LaCrosse, Wash., for the "bombing" of Spokane. On the return leg to "bomb" Los Angeles, they would fly over Butte, Mont.; Hanna, Wyo.; and Hoover Dam, Nev., starting their run on Los Angeles at Perris, Calif.

The B-36s were scheduled around the same circle, cutting from Spokane to Salt Lake to Hoover Dam, however, to shorten the time en route. Too, the "big birds" were to take off later, at 2130 hours, so they could make their "free-style" runs on "Sacro" after dawn.

The rules were tough. If the aircraft failed to meet the scheduled take-off time within five minutes, it was an abort. If you didn't make your checkpoints en route within a plus or minus three minutes, you got a "zilch" for that part of the mission. The same applied to leaving an assigned altitude to get better bombing or navigation conditions. If you were in cloud and couldn't get a star fix, it was just tough stuff, buddy.

And you could get tossed clear out of the meet if you used visual or radio aids on a radar RBS (Radar Bomb Scoring) run. Or if you used visual, radio, or radar means to alter your course or determine an ETA (esti-

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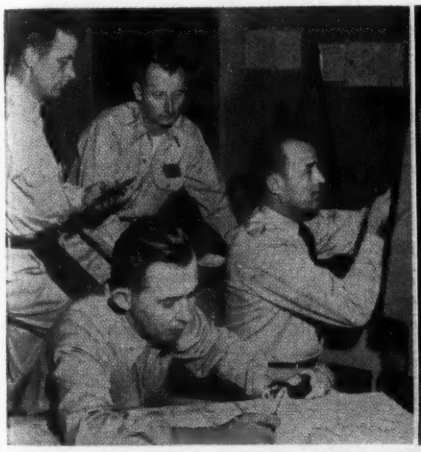
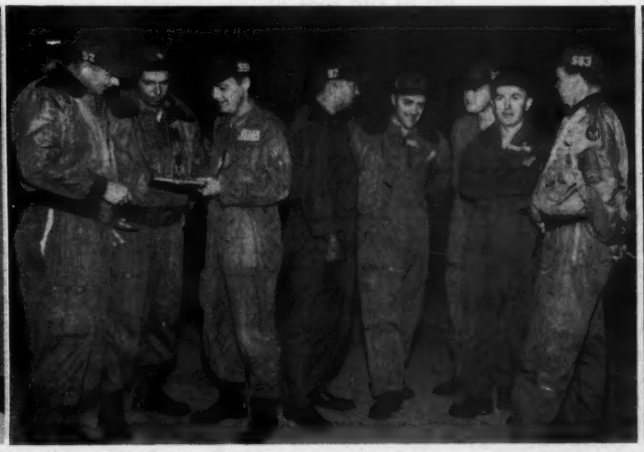


Photo scoring team checks radar scope photos to check accuracy.



Crew members of the 92d Bomb Wing (runners-up) go over last-minute details on eve of final mission.

Maintenance men from Lake Charles AFB "sweat it out."

mated time of arrival) on the celestial navigation legs of a mission. Or if you obtained any illegal assistance or used unauthorized target materials on the missions.

This, then, was the story when Capt. Joe Schreiber taxied B-47 Number 079 into position at a few minutes after 1730 on Wednesday evening and gave the big silver plane a six-throttle kick that sent it high into the evening sky in quest of a good mission for the 22d Bomb Wing's 33d Squadron.

At ten-minute intervals 079 was followed by twenty-two other B-47s as the 1955 "Tournament of the Giants" got off to a thunderous start.

The "Big Sweat" had begun, and the some 1,000 officers and airmen involved, at both March and Fairchild, began to turn nervous eyes toward the scoreboards.

Of course there was nothing there yet.

But it wouldn't be long now. . . .

* * *

On the corner of Alameda and Century boulevards, in Los Angeles, stands the E. M. Jorgensen Steel Company plant, hardly more distinguishable from its neighbor plants from 35,000 feet than is one brick from another in a pavement.

But to the SAC bombers Mr. Jorgensen's place of business was the will-o'-the-wisp focal point of their hopes, homework, and perspiration, for the northwest corner of one of the Jorgensen buildings had been designated a target. A Radar Bomb Scoring computer at Cheli AFB, Maywood, Calif., would graph the hits and misses on the Jorgensen plant. From the Cheli site an RBS unit can determine bombing areas on any known point in the Los Angeles area.

If the "bombs" are exactly on target, the computer credits the crew with a "shack" in SAC parlance ("shack," of couse, harkening back to the days when bombardiers actually used desert shacks as targets). If his bombs are within a city block, roughly, of the RBS site, the observer gets into the scoring column. But if his stick misses by a wider margin, his load has "boondocked."

The joy of the RBS system is that SAC no longer flies around littering the tules with hunks of brass. Now, instead of toggling off a handful of bombs, the observer merely triggers his bomb release switch, thereby firing a radar impulse which is recorded by the RBS station. As the ordinary bomb would be dropped about eight miles back of the target at modern speeds and altitudes, the RBS station can plot where the bomb was supposedly released, compute wind drift, and figure out accurately where a real stick would have landed. The training is much more realistic, for concentric circles marked in a desert wasteland don't look much like a steel plant. The Jorgensen plant does because it is. In addition, with the RBS system the government is saved the expense both of bombs and bombing ranges.

In addition to the Los Angeles plant, two other factories were picked as RBS sites, the Campbell Soup Company's Sacramento plant and the Centenial Flour Mill in Spokane.

For one week before the start of the meet, all competing crews were forbidden to fly over the target cities, or even to make ground trainer "runs" on facsimile maps of the targets. In fact, the standard target photos and "poop" on the targets were only made available to contest flyers a short seven days before the series began.

But, by the time the B-47s touched down on the March runway, the observers knew their targets well. As Maj. Grover Heiman, 15th Air Force PIO, said, "Any of them, for example, could draw a picture of the skylight in the roof of the Jorgensen plant . . . they could tell about the ladder going up to the roof at the Campbell Soup factory in Sacramento . . . they can describe the oblique shadows cast by the Centenial Flour Mill at certain times of day or on a moonlit night. They know how many windows pierce the walls."

* * *

Inside the big, new north hangar at March (still incompleted, but "loaned" to the Air Force by the contractor for the series), there was a buzz of excitement around the huge scoreboard (from which the civilians and the press were restricted because the accuracy of the bombing was classified material).

Things were about as had been expected on the first mission. The defending B-47 champs, Maj. Wallace Hynds's crew from MacDill AFB in Florida, representing the 2d Air Force's 305th Wing, had gotten off to a flash start, making an almost perfect first run on the contest round-robin and racking up a total of 421 points. In second place was March AFB's 22d Bomb Wing crew, the B-47 flown by Capt. Joe Schreiber that had opened the "big show" on Wednesday evening. Close behind the 22d's total of 352 points was Maj. Horace "Bo" Traylor's crew representing the 93d Bomb Wing from Castle AFB at Merced, with 345 points. Major Traylor's copilot was Maj. Martin S. Speiser and his observer was the dark-lashed, earnest major with a Spanish name, Jose L. Holguin.

No B-36 scores were in yet, but the B-47s looked awfully good.

* * *

Running the "Big Show" took plenty of hard work behind the scenes. If there was glamor aplenty out front, there was hard, grinding labor offstage. In the parachute rigging department, six men packed approach and drag chutes for forty-two airplanes in thirteen hours . . . crew chiefs, camera technicians, radar specialists, and instrument specialists worked round the clock to keep the aircraft in tiger shape . . . members of the 11th Radar Bomb Scoring Squadron worked till their eyes crossed, plotting ground speeds, tracks, and headings to determine the accuracy of the "bomb drops." . . . Near the scoreboard, keeping weary vigil, sat a man who wore a silver star on his collar. He was Brig. Gen. James V. Edmundsen, and the crew he was "sweating" was his 303d Bomb Wing from Davis-Monthan AFB. . . . Working a twelve-hour shift in "off-limits-to-everybody" Tower No. 2 was the five-man scoring committee tallying the bomb reports from the RBS sites. . . . In the big hangar alone, more than twenty-two miles of communications cable had been laid and fifty-eight telephones installed to expedite maintenance, to aid the press coverage of the meet, and to link the various official offices. . . . A crew chief two miles down the line didn't have to hike half a day to get parts; instead he summoned a radio-equipped pick-up truck, ordered the part on intercom, and waited no longer than ten minutes to have it delivered at the plane. . . . Out on the hardstand a member of the alert crew gave the "chop it" signal to the pilot of a T-bird which had just rolled in. The pilot, Maj. Tom Barr of Davis-Monthan, had just come down from Fairchild on the daily courier run, with film to be scored from B-36 navigational runs. When he delivered it, the ten-man Photo Scoring Team would take over to evaluate celestial-nav scores. Yes, sir, it was a big show, a five ringer at least.

* * *

By Saturday, August 27, the fourth day of the steaming competition, things had changed a bit on the scoreboard. Maj. Wallace Hynds's crew, defending champs among the B-47 outfits, had fallen from the lead, with the top spot taken by its sister MacDill crew, led by Lt. Col. Paul D.

(Continued on page 47)

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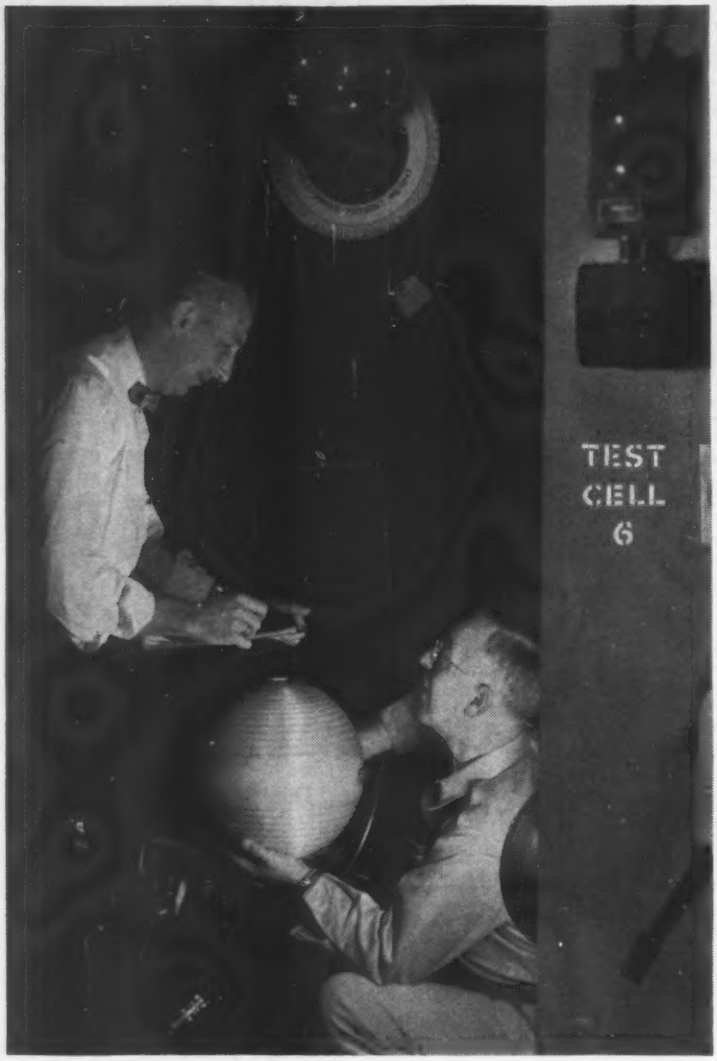

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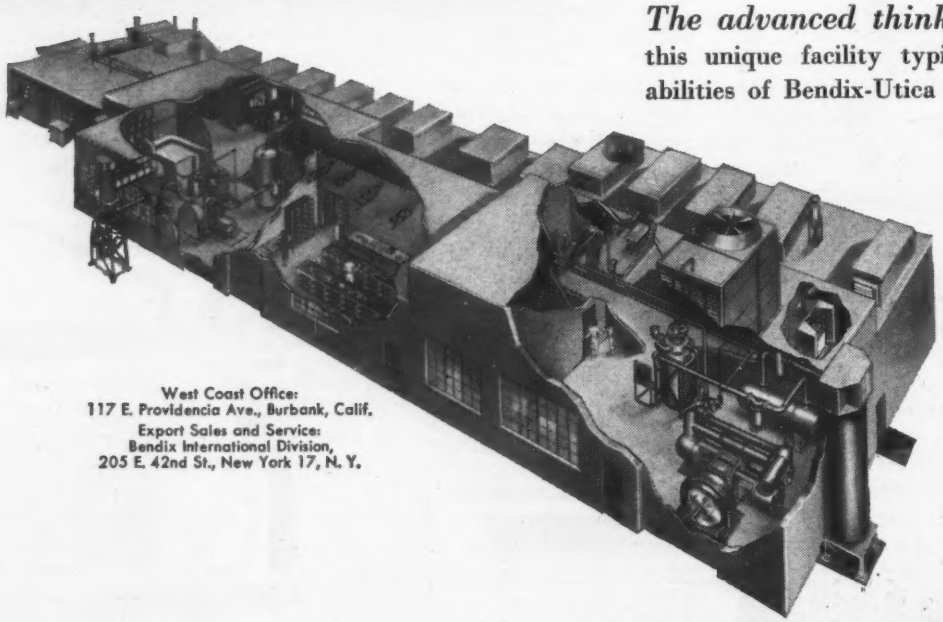

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Pohlen. Capt. Joe Schreiber's 22d Bomb Wing had dropped out of sight, too, but Majors 'Bo' Traylor, Marty Speiser, and Jose Holguin, flying the colors of Castle AFB's 93d, had moved up to second spot in the bombing and navigation competition. In third place now was a March outfit, the 320th Bomb Wing, led by Maj. J. F. Allen, Jr.

And to close observers something more sensational was beginning to show up on the scoreboard: As yet a B-36 crew had yet to show among the top three in the over-all bombing and navigation competition.

But then the halfway point had hardly been reached.

Still, maybe this year. . . .

* * *

Everywhere you walked you could feel the tension building. Maybe it was the heat. Southern California was beginning to swelter in one of the worst heat waves in its history. A lid had been clamped over the valley. Rich, green avocados fried brown on the trees; tempers shortened, but the B-47s still flew in the night.

In the background you could hear people saying: "One good bomb will put us in there" or "I'm saying we'll get a shack this trip. I'll lay money on it."

In the hangars and on the line the crews played pinochle while they waited for their "birds" to return. Some played "cut-throat hearts" and some gin rummy and a few even played bridge. One outfit had a game of their own invention. They called it "Indispensable Perch," whatever that meant.

And every time they dealt the tension mounted a little.

* * *

In the sweltering apartment Mrs. Yvonne Roller was having labor pains.

Timing them, she decided she'd better call Joe at the field. He'd be worrying.

She called, but she didn't tell Joe to come because she knew his outfit had a good chance now of winning the trophy. Maybe even the wry humor of the name "Fair child" made her smile; maybe she didn't even know the name of the trophy. But she did tell Joe not to worry about her, to stay on the job.

When she hung up she realized she had waited too long.

And so, with quiet courage, she delivered the baby herself.

* * *

As of Sunday, August 28, startling things had happened again on the scoreboard—and by now every little change was enough to bring on the crowds. Neither Hynds, Schreiber, nor Traylor's name showed in the win, place, or show positions for leading crews. Top dog now was Lt. Col. E. R. Cavin's crew, a B-47 outfit from Davis-Monthan. In second slot was a B-36 crew, that of Lt. Col. W. H. Bainidge, out of Fairchild; and third was another '47 trio, the crew led by Lt. Col. J. B. Harrelson of March. The two crews from Davis-Monthan retained their combined edge in the wing bomb-nav competition while the 92d Bomb Wing (B-36) rocketed into second place in the over-all race for the Fairchild trophy.

The B-36s were the dark horses now, but they were coming along too fast for comfort on the home stretch.

* * *

They call it the "Scan" room, Scan being short for "Scandinavian." It's hot and wonderful in there when you're dead tired after better than six tense and wearing hours in the saddle of a B-47.

The masseur, M/Sgt. Jay W. Tyrrel, 15th Air Force Physical Conditioning Supervisor, kneads and wheedles the knocks out of bodies gray with flying fatigue.

"Know what I heard?" said one crew member, enjoying a steam bath.

"No, what did you heard?" said a pilot, groaning happily as Tyrrel untied the knots in his back.

"I heard one of the guys got sore at an umpire in flight tonight, said the guy was trying to unplug his radar, and pulled a .45 on him and kept it on him till they landed."

"Makes a good story," said the pilot.

"Yeah," said the other. "But I don't believe it either."

The scan room is better than a barbershop for the latest gossip. And it sure helps renovate World War II type bodies, too.

* * *

Only minutes after five-pound, five-ounce Gary Lee Roller was born, kindly neighbors had him and his mother on their way to the base hospital at March. There a badly worried A/2C Joe Roller got to see them.

The next day Mrs. Roller called Capt. J. H. Decker, 320th Bomb Wing Maintenance Officer, and asked him to keep her husband on his aircraft for the last night of the competition.

She said she was very anxious that the aircraft be in best condition for the 320th to win the Fairchild trophy.

The 320th figured, with rooters like Yvonne and little Gary Lee Roller, that they could hardly lose.

So they went out to win.

* * *

So did Jose Holguin, Marty Speiser, and Bo Traylor, the three majors from Merced.

In their flying machine, "The City of Merced," they blasted and pasted and "shacked" everything from Sacramento around the horn to L. A. to beat out Lt. Col. James H. Seely's B-36 outfit from the 11th Bomb Wing at Carswell, Fort Worth, Tex., by a scant nine points.

But nine points was enough to make the crew from the 93d Wing at Castle the top over-all crew in both bombing and navigation in the meet—and to help win for the B-47 its first bombing competition.

The three majors—easy-going, drawl-talking Bo Traylor, the South Carolina boy who had won the DFC flying B-25s in the China theater in World War II; comedian Marty Speiser, the law school graduate from Brooklyn; and Jose Holguin, the serious Spaniard from Santa Ana—had won themselves a pile of fame.

* * *

They had won something else, too.

On Wednesday, August 31, a big KC-97 with four stars on the shingle just under the pilot's window landed at March to pass out some hardware.

Gen. Curtis LeMay, who once had been a flying student of Gen. Nathan Twining's at that same March Field, startled the three majors by handing them silver leaves at the ceremonies.

He also made A/2C Joe Roller and his wife and baby very happy when he presented the Fairchild trophy to March AFB's 320th Bomb Wing for the best wing bombing and navigation scores in the meet.

In fact, General LeMay seemed pretty happy himself.

"A couple of years ago," he said, "they said we'd never be able to bomb out of a B-47."

But "they" had been wrong, for the B-47 had copped five of the first six places in the over-all crew competition, as well as the top crew bombing prize, the top crew navigation trophy, and the best wing navigation award—and, to boot, had taken five of the first seven spots in the wing bomb-nav competition.

The B-36 men took the whole thing good-naturedly. "We're still allies," they said.

Some people even thought they saw General LeMay smile.—END

One of our most frequent contributors, Ed Mack Miller is a free-lance writer and a captain in the Colorado Air National Guard. His story on the AF's survival school appeared last month, in the same issue with his coverage of the ANG gunnery meet in Idaho

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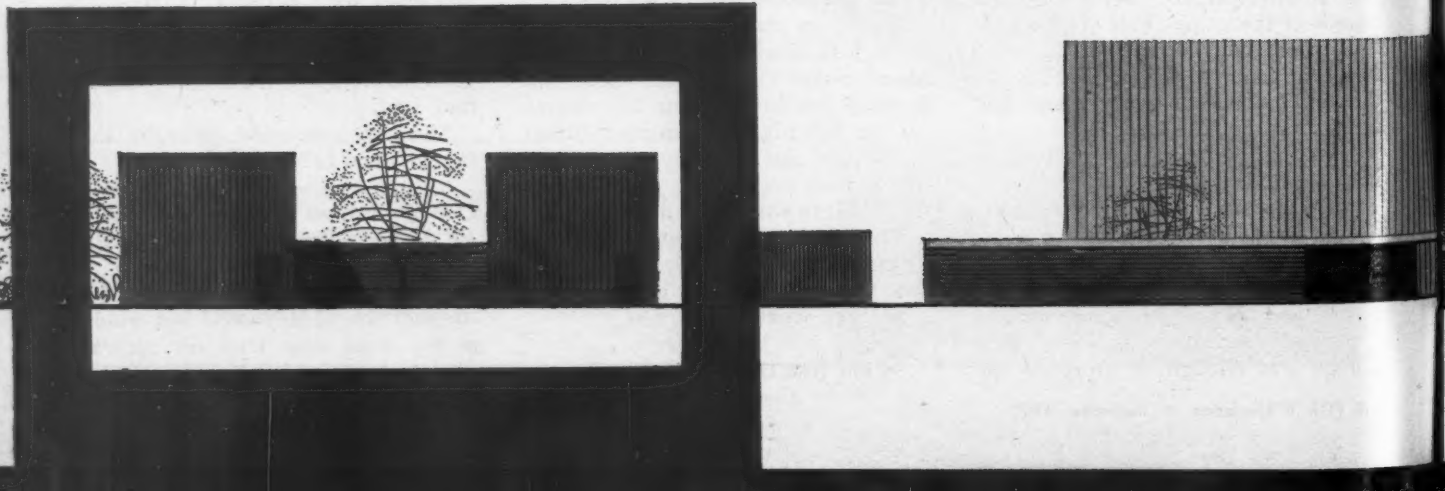

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WATERLOO | USA?

By T. F. Walkowicz

ON THE eve of an election year, two Administration figures, the Secretary of the Treasury and the Secretary of Defense, are driving hard toward the two major objectives of these four Republican years—balancing the budget and assuring adequate defense at minimum cost. And in their determination, both Secretaries Humphrey and Wilson are apparently joined with all Americans who want no false economies. Neither Geneva Number One nor Geneva Number Two offer any realistic basis for reducing defense expenditures. True economies must not be neglected; but defense cuts, if they are made, must come from a demonstrated ability to get as much or better defense for less money.

But all is not serene behind this unity on the big issues. It's a long, long way from men like Mr. Humphrey and Mr. Wilson down to the levels where defense budgets are examined, dissected, put back together, and reexamined. And out of this melting pot where budgetary policy gets put into practice, Assistant Secretary of the Air Force for Research and Development Trevor Gardner has come with an urgent plea for $100-$200 million in supplemental appropriations for Air Force research and development. Mr. Gardner calls cutbacks in R&D spending "absolute idiocy."

Assistant Secretary Gardner is not the first man to fight for a bigger R&D budget, although it is strange to find he has so little support in a businessman's Administration, whose *policies* unequivocally accord with Gardner's position. The *policy war* on this crucial issue was joined immediately after World War II, and it has been raging ever since. It is a *war* between two different approaches to the problem of maintaining qualitative supremacy of American arms. And if Mr. Gardner loses the current battle in this war, America will have gone a long way toward meeting its Waterloo.

At the end of World War II, radar, jet propulsion, and the A-bomb kicked off a constantly unfolding panorama of scientific weaponry. As supersonic flight, the H-bomb, ballistic missiles, atomic propulsion, and—eventually—space flight progress, in turn, from the realm of science fiction into operational weapons, two hard facts of survival became apparent:

- **Technical surprise can be decisive in modern war.**
- **To be decisive, a technically superior weapon, with which the enemy surprises us, need not be actually used in a shooting war.**

Suppose the Soviets had beat us in the deliverable H-bomb race. As our A-bomb had deterred them, their H-bomb would have then deterred us. And, without joining with the US in a nuclear war, the Soviets would have proceeded to subvert the nations of the Eurasian continent one at a time, on their own timetable. Knowing that as few as twenty Soviet H-bombs could knock out thirty percent of our population, a major fraction of SAC, and fifty percent of industry, what President of the US would have attacked the USSR with A-bombs to keep the Free World from going by default?

And the H-bomb is surely not the most terrible weapon that man will devise. Out of our laboratories already have come basic discoveries which imply that the kilotons of A-bombs and megatons of H-bombs will inexorably be followed by *bilotons* and *trilotons* of bombs whose destructive capability defy human description and understanding. And many American experts have warned that Soviet development of unusual delivery techniques for such weapons, *e.g.*, the intercontinental ballistic missile, appears to be running ahead of ours.

The Soviets have made it abundantly clear that they intend to achieve world domination by means foul or fouler. If a surprising jump in scientific weaponry should tip the qualitative world-balance-of-power in their favor, the Soviets will certainly not commit suicide by attacking the US. But would we commit suicide by attacking them if they proceed to blackmail into submission and knock over like a row of dominoes the tottering nations of the Free World?

Clearly the R&D race—and not World War III—is our last stand. If we keep ahead in it, if the major technical surprises are on our side, the Soviets *may* remain deterred and there *may* be time to convert the H-bomb and even the super-horror weapons that come after it to mankind's peaceful progress.

Why, then, does Mr. Gardner appear to be so alone in his struggle to accelerate the pace of American defense R&D? This war over the R&D budget turns on three major issues, which have been continually debated by adherents of two schools of thought since late 1945.

- **First,** everyone agrees that R&D *programs* must be *stable*. However, one group translates this to mean a *constant R&D budget*, whereas the other group argues that stable R&D programs require a *steadily increasing R&D budget*.

Equating "program stability" with a "constant R&D budget" begun in late 1945, when military requests for some $2 billion for R&D were cut back to a "stable" figure of about $500 million. True, the original figure was undoubtedly too high. However, the Pentagon also pointed out that most of the R&D budget goes for experimental hardware—aircraft, missiles, guns, electronic gear, etc.—and that the cost of such hardware rises rapidly with each new generation of prototypes, because performance requirements demand keeping ahead of enemy progress. Thus, if the R&D budget stays constant, one eventually is not able to afford initiating new prototypes.

The "constant R&D budget" group prevailed until about mid-1950. Then, with the impetus of Korea, the impasse was broken and the USAF R&D budget went rapidly from some $200 million to about $535 million in FY 1953. In late 1952 it was programmed for about $585 million and then above $600 million in succeeding fiscal years. But this trend was reversed in early 1953. And despite Mr. Gardner's reservations, expressed at the initial budget hearings of the present Administration before Congress in early 1953 and many times since, the USAF R&D budget hovers just above $400 million (after allowing for changes in bookkeeping which make the budget appear larger than it actually is, on the old accounting basis).

The Air Force must exploit "breakthroughs" in *many* challenging and vital areas, two of which—ballistic missiles and aircraft nuclear propulsion—have been repeatedly mentioned. Experimental hardware in these other areas costs huge sums of money. Little wonder, then, that responsible

USAF spokesmen have bid for additional R&D dollars.

A recent National Science Foundation study shows that the national expenditure for R&D grows at the rate of ten percent per year, whereas the growth rate of the gross national product is only three percent per year. One should expect this from the simple consideration that, as the national economy becomes more complex and technological, it takes a progressively greater portion of our total effort to invent things, develop new products, etc. This NSF study appears to support strongly the thesis that, similarly, as the machinery of warfare becomes more complex, a steadily growing portion of our defense expenditures should go for R&D.

• **Second,** everyone agrees that we are critically short of scientific and technical manpower. However, one group holds that we must *tailor the military R&D budget to some reasonable fraction of the available manpower pool,* whereas the other group submits that *the military R&D budget represents a demand for trained manpower, which our competitive economy can supply.*

Those who favor tailoring the R&D budget to available manpower have generally held that about fifty percent of our scientists and engineers should be working on military R&D, the other fifty percent being needed to meet the demands of our civilian economy. Of course, the more obvious answer to this argument is that the civilian economy will eventually not belong to the US if our armed forces lose qualitative superiority. Furthermore, the stringent requirements of military R&D result in much pioneering work which finds later application in civilian industry.

Looking at this problem more critically, the argument of the "budget limiters" has much to commend it in fields such as electronics, where there is a very large civilian demand for radios, TV sets, telephones, electronic computers, automatic controls, etc., On the other hand, commercial aviation needs can be satisfied by a small fraction of the technical manpower trained in the aeronautical sciences. And the world's number one Air Force—and not the civilian economy—should be our primary concern in utilizing this manpower.

Currently, much is being said about the US-USSR scientific manpower race. JCS Chairman Adm. Arthur Radford has recently expressed serious concern that the Soviets are turning out scientists and engineers—well-trained ones—at about twice the rate we are. Yet, while noting the need for technical manpower, we appear to be cutting the demand for it by slackening the pace of military R&D work.

Over three years ago, then Undersecretary of the Air Force Roswell Gilpatric reviewed both the "stable R&D budget" question and the technical manpower problem in the following way:

"With the end of the last war, airpower faced a technological revolution brought about by advances in supersonic aerodynamics, jet propulsion, and electronics. The Air Force did not assimilate this technological revolution as rapidly as possible, because we were unable to give industry the R&D contracts which would have resulted in the prototypes that subsequent history has clearly shown we needed. The industry's engineering teams dispersed and deteriorated to some extent as a natural consequence.

"There was a mistaken idea held by some that, considering the needs of conversion to a civilian economy, there were not enough scientists in the country to spend more than $500 million annually on military research and development. In actual fact, however, a large fraction of the Air Force R&D budget is spent on engineering and manufacturing of prototypes—not on scientific research. Competent engineering staffs were available and, in fact, were begging for work. If we had implemented a sound and continuous prototype program between the end of World War II and 1950, more modern aircraft would have been ready for production much sooner after the outbreak of Korean operations.

"We must have a sounder basis for establishing R&D budgets, if a similar situation is to be avoided in the future. The military R&D budget is, in the traditional American sense, a 'demand' which our competitive and free economy can be expected to supply. Of course, the military departments must continually make the most searching analysis of actual operational needs. Qualitative military requirements, and the R&D program arising from these requirements, must be kept down to an absolute minimum. However, once the military R&D budget has been carefully screened, the armed forces should be permitted to challenge American science and technology to meet the needs of national security, even when it is known that various problems—such as manpower shortages—may arise.

"Our scientific and technical manpower output is going down, while that of the Soviets is going up. This trend must be reversed, for our national survival depends on maintaining technical superiority. If military R&D budgets are limited according to present and anticipated trained manpower levels, we may, in effect, hand qualitative superiority in weapons over to the Russians—in the long run—by default. To avoid eventual defeat by default, we must now simultaneously increase our military R&D efforts, and broaden the base of scientific and engineering training. With appropriate administrative safeguards, it should be possible to accomplish both of these tasks by increasing the military R&D budget without causing unacceptable delays in high-priority R&D projects. In my opinion, this problem constitutes the major challenge which the aircraft industry and the Air Force must still face."

Three years later, nobody has soundly answered Mr. Gilpatric's argument. Instead, we talk about getting youngsters to study engineering, while simultaneously cutting the R&D budget which represents a demand for their services when they are graduated.

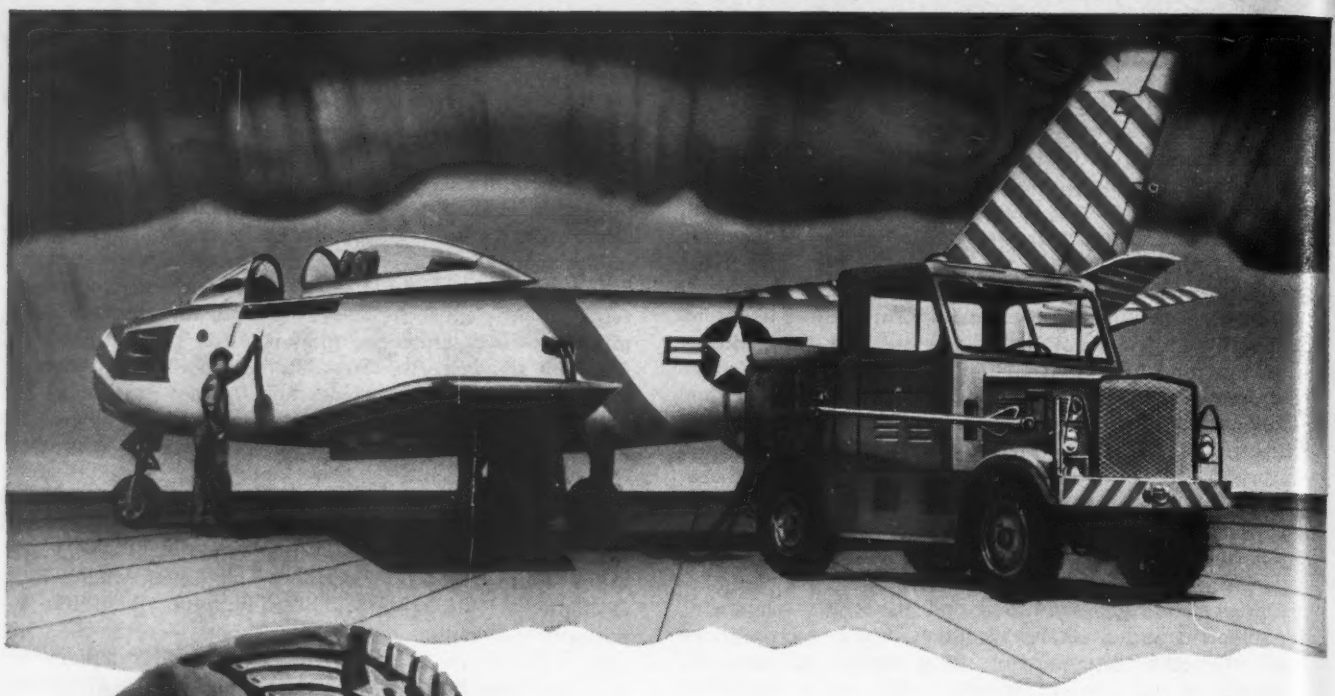
• **Third,** and finally, everyone agrees we must stay ahead of the Soviets in quality of weapons. However, one group *consistently underrates the Soviets and favors a carefully considered R&D program of "adequate" size;* the other group points out that the *Soviets have consistently surprised us by their rate of progress and calls for an all-out effort in the R&D war which is being fought now.*

The examples of instances where we have underrated the Soviets are numerous, incredible, and well-known. Generally speaking, we first chose to believe that the Communist system is not conducive to creative thought and, hence, that the Soviets had to steal secrets because their scientists couldn't invent anything. Then we surmised that it just took them too long to transform new knowledge from paper into prototype hardware. Next we comforted ourselves with the wishful hope that the Soviets just wouldn't bme able to produce in adequate quantities the material for a modern war machine. Now we seem to be thinking that the USSR can display aircraft in an over-flight, but just can't train crews, re-equip air bases to handle new aircraft, etc.—in short, that the Soviets just can't build an operational, combat-ready air force more rapidly than the US.

The next sequence in this amazing series of national self-delusions is somewhat more painful to contemplate, because it involves speculation about Soviet ability and willingness to use the then world's number one Air Force, after they have done all of the things we consider impossible for them.

It is easy—and commonplace, in spite of mounting evidence of Soviet progress—to dismiss this problem out of hand by noting that not all Russians are seven feet tall (or twenty-one feet or whatever the number currently in vogue

(Continued on page 53)



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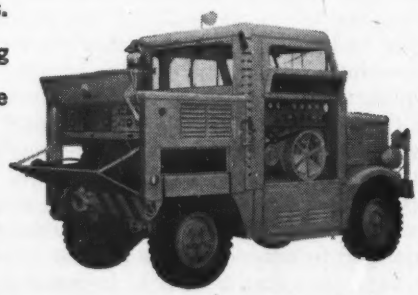

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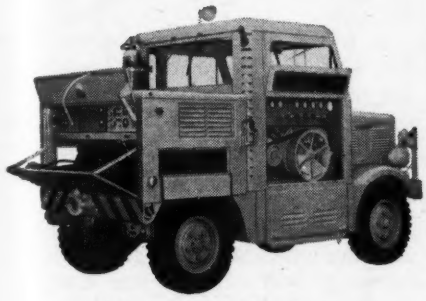

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WATERLOO, USA? — CONTINUED

may be). Yet, throughout all of these years, the tendency to sell the Soviets short has been largely contentious, based as it is on inadequate intelligence. Just this past Sept. 15, the JCS Chairman, Admiral Radford, stated: ". . . we have too little assured knowledge about Soviet capabilities. . . ."

This significant statement by Admiral Radford strongly supports the views of those who favor accelerating the pace of U S military R&D. The argument runs like this: If we don't know well enough what the Soviets are doing, and if every new bit of intelligence indicates that the Soviets are slowly but surely closing the margin of qualitative superiority which we still enjoy in some areas, then nothing less than an all-out R&D effort will meet the needs of survival.

To put it another way, the Soviet system represents a long-term threat to our way of life, in much the same way that death threatens the individual life of every one of us. We wouldn't gamble with our own individual lives and those of our heirs by cutting down on doctor bills and insurance. Why, then, should we risk the life of the nation by "savings" in military R&D, which insures the long-term scientific and technical health of our armed forces and the qualitative superiority of American arms?

After debating these three major issues, the R&D budget cutters usually bring up two additional arguments which merit brief discussion.

First, there is the old "eliminate the boondoggles" or "squeeze the fat out of the program" argument. In disposing of this smelly old chestnut, let it be said at the outset that a soundly conceived R&D program, *by definition*, has some so-called "boondoggles" or "fat" in it. By its very nature, the research and development process is a risk-taking proposition, in which one should anticipate a reasonable percentage of blind alleys or "failures."

Going further, the R&D program is determined by military and civilian scientists and engineers in the defense R&D establishments, who sift out the most promising projects from among the many proposed by the leading research and design engineering teams of the nation. During the sifting process, the defense R&D staffs of all three services avail themselves continually of the advice and guidance of many leading American scientists and industrialists. The "budgeteer" who looks superficially at an R&D program put together by this process and says, "Squeeze out the fat, cut twenty percent," is actually saying that his judgment is better than that of the nation's leading military-scientific-industrial R&D teams.

Nobody can quarrel with the legitimate function of budget review, as it can and should be carried out. But this "squeeze-the-fat" argument ought to be once and for all recognized for what it is—an unconscionable usurpation of authority without responsibility on the part of budgeteers. This argument can and should be put to rest in one of two ways—either we fire our leading scientists and industrialists, and put the budgeteers in charge of R&D; or, we banish to the American equivalent of Siberia from among the budgeteers all of those who set their own judgment above that of the outstanding men who carry the heavy burden of direct responsibility for military R&D.

The second additional argument advanced for cutting the R&D budget is that the aircraft industry should use its own funds for this purpose. This argument is sound in part. Recently, Assistant Secretary Gardner pointed out that five major airframe companies, with sales for 1954 totaling some $3.7 billion, spent only $1.4 million of their own money on R&D. There is little doubt that, as it moves toward financial stability and maturity, the aircraft industry as a whole—not withstanding a few notable exceptions—has not been quick to see and accept its broader responsibilities.

The present Administration has wisely taken several steps to induce the industry to reinvest a greater fraction of its earnings in the future. For example, the Defense Department now strongly favors R&D companies in awarding first production contracts. In the USAF, highly classified information on R&D program needs is being made available to industry, to enable companies to spend their own R&D funds more wisely; and companies doing R&D on their own are being favored in the award of new prototype contracts, without time-consuming paper-design competitions.

However, there are limits to the progress which can be made in this manner. The biggest remaining obstacle involves the government's insistence on including proprietary rights to the results of company-financed R&D work in any production contract. These rights, once signed over to the government, soon reach all of industry via requests for bids on second-source contracts, often long before a company could have recouped its R&D investment out of earnings on the initial production award.

Finally, we must recognize that the

(Continued on following page)

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STROUKOFF AVITRUC

Stroukoff Aircraft Corporation

WEST TRENTON NEW JERSEY

WATERLOO, USA?—CONTINUED

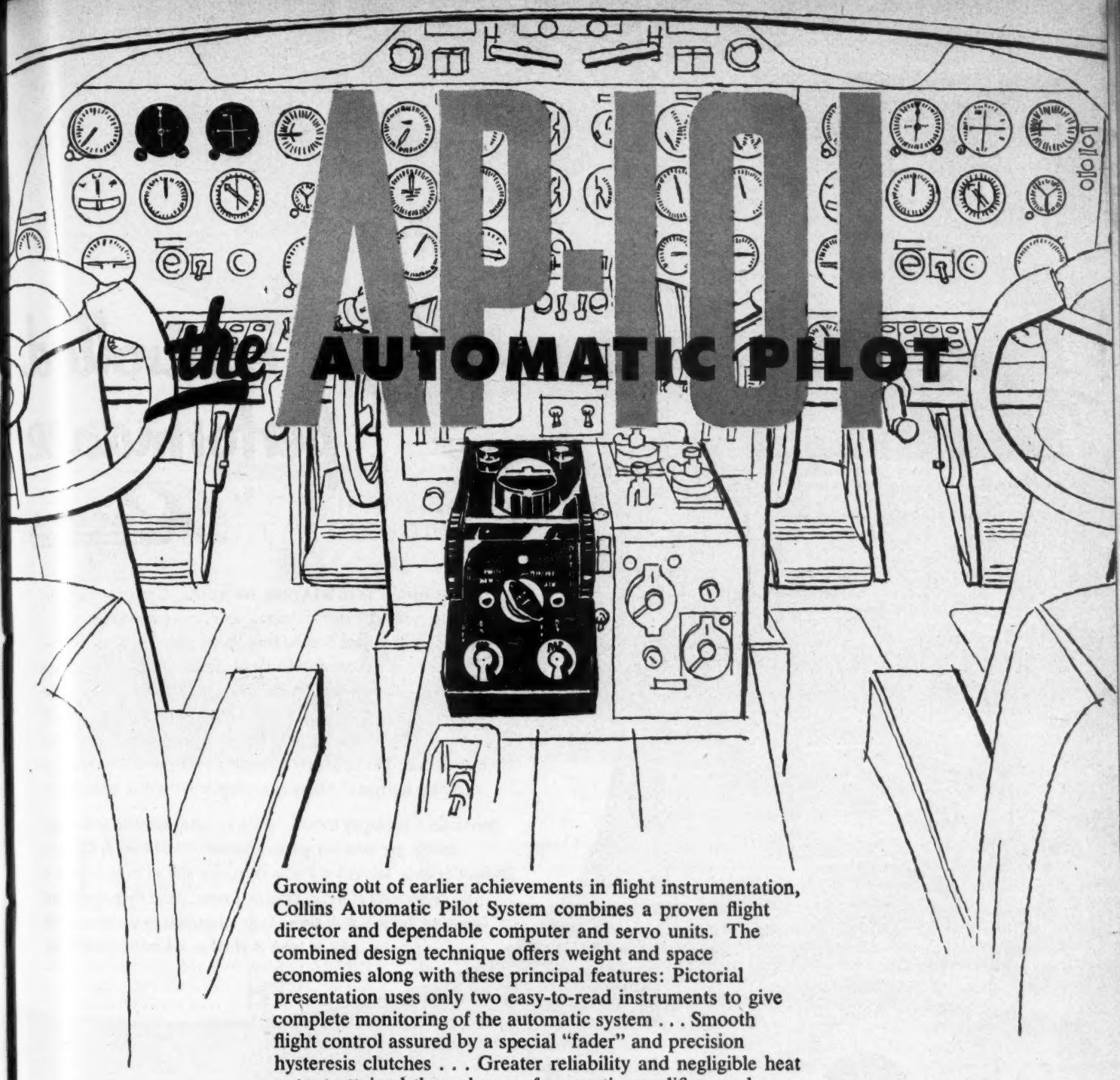
aircraft industry just could not afford to "foot the bill" for all of military R&D. True, again, in fields such as electronics, R&D is comparatively inexpensive and there are huge civilian sales with reasonable profit margins to underwrite the cost of R&D. However, commercial aviation sales are relatively small, and result in marginal profits (if not losses) which are a "drop in the bucket" compared to the cost of military R&D in aeronautics. For example, the profits on all commercial airliners sold to US carriers in *the past eight years* would support the current USAF R&D effort *for only about one month.* Looking at it another way, paying for the cost of military R&D would wipe out the net worth of the aircraft industry in about one year.

It is not surprising, therefore, that Mr. Gardner has made it clear that his request for $100-200 millions in supplemental R&D appropriations is in addition to the greater sums that the industry is expected to reinvest in R&D on its own.

It is difficult at this point to judge just how much support Mr. Gardner's campaign will rally. Former Assistant Secretary of Defense for R&D Donald A. Quarles brought to that job, and to his new assignment as Secretary of the Air Force, extensive knowledge and *working experience* in the field of R&D. However, in none of his previous positions as Vice President of Bell Labs, President of the Sandia (A-bombs) Corporation, and top-level advisor on defense R&D, has Mr. Quarles carried—as he does now—the heavy burden of direct responsibility for America's dominance in the air.

Mr. Quarles's former job of Assistant Secretary of Defense, R&D, is apparently slated to go to Dr. C. C. Furnas, Chancellor of the University of Buffalo, and formerly Director of the Cornell Aeronautical Laboratory and top-level adviser on defense R&D in aeronautics.

With men of this competence and experience above him, Mr. Gardner will at least get ample opportunity to present the case for accelerating our pace in the qualitative armaments race. Mr. Gardner's objective amounts to an additional investment of about $1 per annum per US citizen in *long-term defense insurance.* If he succeeds it will be the first clear recognition—without an open Soviet provocation to goad us into action—of the US-USSR technological race for the deadly war that it is. If Mr. Gardner fails, it will be too late to thank him for his efforts when it becomes fully apparent just how right he was.—END



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Flamingo Wing

TOPS IN THE NATION

Ronnie Black, a patient from Palm City, Fla., is cheered by Colonel Eliker and comedian Jerry Lewis.

To keep the Flamingo Wing manned, a recruiting team toured Florida with this Mobile Recruiting van.

LAST August the Air Force Association honored the 435th Troop Carrier—or Flamingo, as it is better known—Wing of Miami as the most outstanding wing in the Air Force Reserve. The selection was made by Continental Air Command, which directs the Reserve program, serving official notice that there is much truth in the old saw about hard work paying off.

A year ago few would have been so brash as to predict that the Miami Wing would have been recognized as the "most outstanding" in the country. There were few airmen, plenty of officer vacancies, and turnover among both officers and airmen stood at almost 100 percent.

The reasons were many. For one, the population of Greater Miami didn't know the Air Force was in town. The Marine Corps air station at Opa Locka was recognized, but Miamians remembered only that the Air Force had been around town during World War II years and had left. Transfer of the 456th Troop Carrier Wing to Charleston S. C., late in 1953 had merely buttressed that belief. In retrospect, it would appear that the training program was desultory. Reservists who appeared for training on Sunday morning found themselves waiting around for hours while squadron commanders decided on the program for the day. More often than not, payrolls were late. And the Reservists who counted on drill pay to meet the installments on the family house or car wanted his check when it was due.

These situations no longer exist. The 435th is the best-manned wing in the country. Personnel turnover is down to a new low of ten percent. Miami knows the Air Force is back in town and is grateful for it. This switch from low to high estate has required backbreaking effort from many, but the man who started it all is Col. Hadley "Hap" Eliker, a slender, energetic pilot who was given command of the Air Force's 2585th Air Reserve Flying Center at Miami International Airport and told to come up with a good wing.

The Eliker formula was simplicity itself: Man and Train. The motto was hammered home by every means available—memos, desk pads, posters, blotters, and the like. It resembled, in miniature to be sure, the famed THINK program of International Business Machines. And it caught on.

Eliker became active in all the aviation and civic associations in Greater Miami, and soon the Air Force began to be included in community plans. Officers and airmen of both the center staff and the wing followed the pattern, and the wing rapidly gained recognition as an important adjunct to community life. In the last year the base, the wing, and numerous individuals have been cited for their community and charitable activities.

Last year's Orange Bowl football game gave the Flamingo Wing a rare opportunity to present itself to the Miami public. To create good will, the Pepsi-Cola company offered to sponsor in the Orange Bowl parade a $10,000 float honoring the Wing. Lt. Col. Curtis Haley, an architect and mobilization assignee with Fourteenth Air Force, designed the float and, with Maj. Roy Whitton, supervised construction. It was the largest float ever entered in the Orange Bowl parade and since has been shown in various communities throughout Florida. Five WAFs from Lackland Air Force Base adorned the float. Headquarters USAF sent the Air Force band and bugle and drum corps. Six aviation cadets were taken to Miami by Brig. Gen. Arno Luehman's recruiting service to act as escorts for the Orange Bowl queen and five princesses. The base chaplain,

(Continued on following page)

The largest float ever entered in an Orange Bowl parade was sponsored by the Pepsi-Cola Company in honor of the 435th Troop Carrier Wing. It was designed by Lt. Col. Curtis Haley.

Maj. Arthur Murray, unofficial world altitude record holder, is interviewed by Mr. Alec Gibson on WTJV's Gibson Show. Major Murray's appearance was in connection with Project Top Flight.

Billie Bischoff and Lavonne Breyers admire AFA trophy held by Lt. Col. John R. Pountnay and Col. Hadley B. Eliker. The Wing was named the outstanding Reserve unit in the nation.

Capt. William F. Fleming, Jr., gave the invocation before the game. For the first time the Air Force had outshone the Marines in Miami. Subsequently, the Flamingo Wing received the Orange Bowl's top award for "outstanding participation" in the colorful festival.

The community relations program was keyed to recruiting with Lt. Col. John R. Pountnay, wing commander, directing the effort. To capitalize on mounting interest in the wing, for example, the 435th ran newspaper ads aimed directly at veterans who had enrolled as students at the University of Miami. Results exceeded expectations.

Eliker and his people realized early that the recruiting requirement could be reduced considerably if the rate of turnover could be held down. Recruiters were asked not only to bring in new men but to attempt to dissuade those who were planning to leave the wing.

The key to the double-barreled recruiting campaign was transportation. And the wing had only four vehicles. But these were assigned exclusively to the recruiters, and personal interviews with prospective members and disgruntled old hands were arranged. Men began to appreciate that they were wanted in the wing. New blood came in and separations dropped off. At this writing the Flamingo Wing has the largest number of airmen of any Reserve wing in the country.

The influx of new people threatened for a time to upset the Train portion of the Man and Train motto. With so many recruits joining, the training program was in danger of being overrun. But Eliker, Pountnay, and company are experimenting with ideas they believe will keep training in line with manning.

They have established special training teams within the wing; they are using senior wing officers and noncoms as instructors; they are bringing recognized civilian authorities to the wing to lecture on special subjects and they are pursuing a liberal policy with respect to awarding additional AFSCs and promotions to men who have demonstrated their interest in and enthusiasm for training opportunities.

It has been, Eliker will be the first to admit, a year of hard work. But, he will add, the wing has been blessed with "a lot of good non-commissioned officers who aren't afraid of hard work."

He will add, too, that the 435th will be in the running again next year for the Air Force Association's top award to a Reserve Wing.—END

1945 **WATCHFUL PEACE** 1955

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As Canada's second decade of jetpowered aeronautical achievement gets under way, Avro Aircraft is undertaking the design and development of a new supersonic, all-weather interceptor, which will maintain Canada's leadership in producing this type of aircraft.

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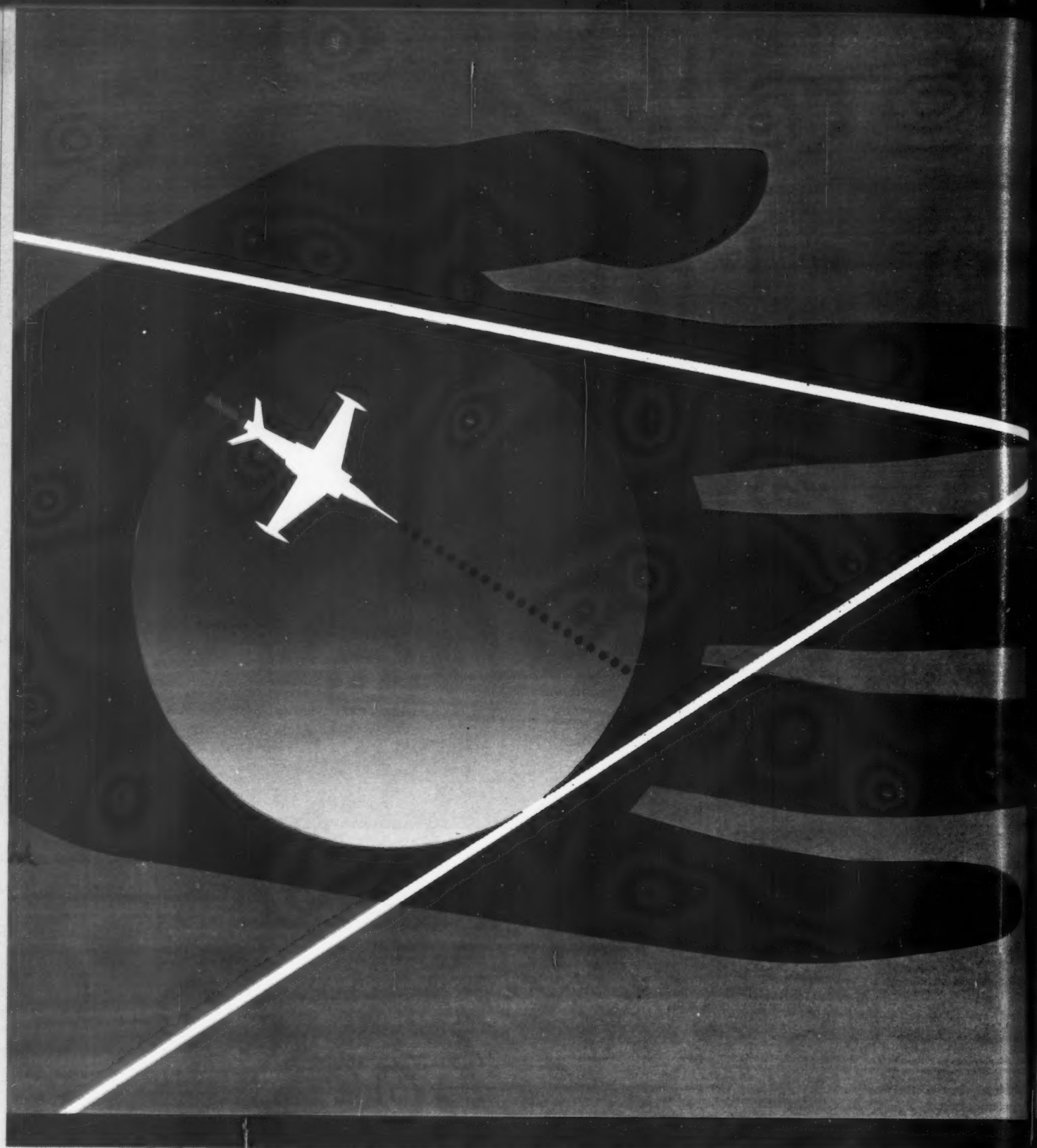

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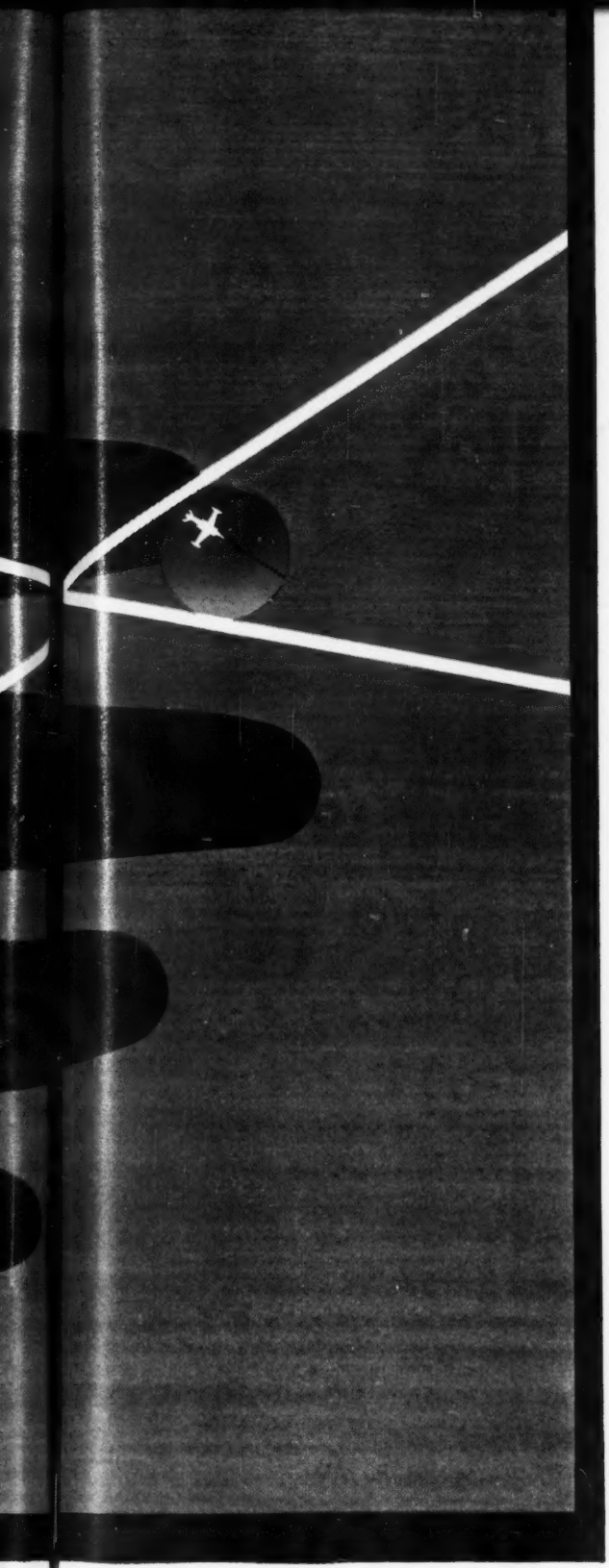
Crosley



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MATS Beats Flight Program Schedule with Allison Turbo-Prop Engines and Aeroproducts Propellers

To MATS' 1700th Test Squadron – Congratulations for a good job well done.

This month, the final hour will be flown on a program which has as its target 3000 flight hours by January 30, 1956 on two Convair YC-131C aircraft powered with Allison Turbo-Prop engines and Aeroproducts Propellers. The program will be completed more than 30 days ahead of schedule – thanks to the skill and enthusiasm of the pilots and crews who were given the job to do.

The aircraft were delivered to MATS at Kelly AFB, San Antonio, Texas, in January, 1955. The 1700th Test Squadron had just been activated and was composed of men who not only were outstanding in their abilities but who demonstrated a genuine enthusiasm for Turbo-Prop transports in military aviation.

Colonel Claude Smith, Commander 1700th Air Transport Group, and his staff immediately initiated a familiarization program for all personnel and the entire squadron set out to obtain maximum time on the two aircraft. The object was to prove the place of turbo-prop-powered transport in military aviation.

Hours on the aircraft mounted rapidly. Sometimes the planes shuttled between Kelly AFB and Travis AFB, or to Andrews, or to the Allison plants in Indianapolis. And many days went by with pilots making operational flights over Texas. Three and four flights a day with five hours per flight became routine. And in one 24-hour period, each aircraft was kept in the air for 23 hours and 10 minutes.

It was long, hard work for pilots in the air and crews on the ground. But they kept at it – determined not only to beat their schedule but to demonstrate convincingly to others the firm, determined faith they have in the future of turbo-prop power.

Under Lt. Col. Samuel C. Burgess, Commander, the work of the 1700th Test Squadron will continue with other aircraft powered with turbo-prop engines. But the pioneering phase of the program is concluding. The rest of the program has been aided immeasurably by the experience gained with the first aircraft assigned to the project.

We at Allison salute the good work of the men of the 1700th Test Squadron. We are proud to have been part of the project. You have proved that turbo-prop engines and propellers are "ready to go" and we are gratified that the convincing demonstration was made with Allison Turbo-Prop engines and Aeroproducts Propellers.

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Coast-to-Coast in a weekend

How Pentagon Pilots Stay Fit to Fight

A first-hand account of a 6,000-mile leap across the country and back in a T-33

Lockheed T-33s, like this one, come in handy for maintaining jet proficiency.

By Richard Fryklund

FIVE days a week Maj. Dave Henderson works at a desk in the Pentagon, writing reports, doing research—one of 3,000 flying officers needed in Washington for the administration of the Air Force.

But on every weekend he can spare, Major Henderson is a jet pilot again, ranging over the United States in a T-33. He—and other Pentagon pilots—can be found in Miami or Minneapolis, San Francisco or San Antonio, getting in a few precious flying hours before their desks call them back to Washington on Monday morning.

It isn't easy for many of these Pentagon officers to get in their flying time. Officially they take time off from their offices to fly their four hours a month and 100 hours a year. But actually many officers find they must fly on their own time.

There seems to be no reluctance to fly under these adverse conditions, however. The Air Force has a hard time keeping enough planes available for the Washington chairborne corps.

Maj. Henderson might be taken as typical of the Pentagon flyers. He served as a fighter-bomber pilot in the Pacific theater during World War II and then was an instructor at the Air University. The Korean war found him back at his old trade, but this time in jets. He flew 119 missions in Republic F-84s. When his fighting ended he was the well decorated commanding officer of the 8th Fighter-Bomber Squadron.

Major Henderson was assigned to the Pentagon in January 1954. He works directly for the Vice Chief of Staff.

Pentagon duty for Major Henderson and the other officers is not permanent. What his next assignment will be he does not know, but he has high hopes that he will be back in an operational unit, flying jets.

So maintaining flying proficiency means more to Major Henderson and his fellow officers than just the flying pay. Flying is still his career.

Major Henderson invited this reporter to see for himself how a jet-age desk jockey keeps his hand in. "Come on up to the office for a briefing first,"

It sounded like a pleasant afternoon. he suggested, "and then we'll go fly."

"Where shall we fly?" I asked.

"That will depend on the weather and the time," he said. "I want to squeeze in as many hours as possible and get in some navigation and weather flying. Supposing we look at the weather maps Saturday morning and then lay out a trip that will give us sixteen or seventeen hours in the air with an RON maybe at San Francisco."

It sounded like a busy week end.

(Continued on following page)

Major Henderson has an office on the outside ring of the Pentagon, overlooking the Potomac. He was writing a piece on nuclear-powered aircraft when I came in early in the week for the "briefing," but he covered up his research material, ordered coffee for the two of us, and settled back in his swivel chair.

"First of all," I said "why do you Pentagon pilots need all this air time?"

"Basically there are two reasons," Major Henderson replied—and then added with a smile, "Well, maybe you'd better say three."

"First, you see, we have to comply with the law and with Air Force regulations. The law requires that all personnel on flying status must spend four hours a month off the ground in order to get flight pay."

"Also, Air Force regulation 60-2 requires us to fly 100 hours a year, twenty hours of it with instrument time and fifteen hours at night in order to stay on flying status.

"But most jet pilots are convinced the minimums aren't enough to stay proficient in jet aircraft. So that's the second reason we fly all we can here: we want to keep more proficient than four hours a month and 100 hours a year will permit.

"Then the third reason we fly. It's fun. Flying is different from the old World War II days—it's more complex, takes more planning—but we still get a kick out of it."

There was another reason, a Pentagon official later told me, which Major Henderson did not mention. If war comes again the Air Force will doubtless look to the Pentagon pilots as a pool of leadership for operational units. The officers who serve in Washington are assumed to be among the cream of the Air Force crop. So as in the time of Korea, many of these pilots will be used immediately as combat leaders. Since leadership includes more than paper work, the Pentagon officers must keep up their flying skill.

I asked the major where he and the other Washington pilots got their planes.

He reached across his desk for a memo pad.

"I've done a little research for you," Major Henderson said, "and here's the story in a nutshell.

"We use two fields, Andrews and Bolling Air Force Bases. All the jets are at Andrews, about fifteen miles east of here. They take care of about 260 jet pilots there, all in T-33s. In addition, they have 275 'regulars' who use C-45s, 225 who use C-47s, thirty who fly C-54s, and 650 who use the B-25s.

"At Bolling, which is a little handier, just across the river, they handle about 1,500 pilots, about equally divided between C-45s, C-47s, and B-25s.

"A lot of flying is local. I do quite a bit of local flying myself—instrument rides, acrobatics, flame-out practice, and so forth.

"But we need plenty of cross-country time to keep up on navigation and cruise control. And of course on a good weekend flight you can squeeze in a little of just about everything."

I asked Major Henderson what kind of plane we would use for our weekend jaunt.

"It's a T-33," he said. "That's the standard single-engine jet trainer made by Lockheed. It started out as the F-80, and then they stretched it out in the middle so they could get an instructor's cockpit in. Actually the new T-33 performs better than the old F-80."

"How fast?" I asked.

"Mach point eight is the maximum. Just how fast that is depends on the altitude. I guess for your purposes you'd better just call it a 600-mile-an-hour airplane."

As I drove out to Andrews Saturday morning that 600 miles an hour sounded mighty good. It's about 2,500 miles to San Francisco. If we get off the ground say at 8 a.m. we should hit Frisco in the middle of the morning, West Coast time.

But the jet age is not that simple.

I met Major Henderson at Andrews field at 7 a.m. It took us two hours of paper work to reach the flight line.

Most of that time was spent on two tasks: Analyzing the weather all over the United States, and planning in detail the first leg.

Weather was the key to everything.

"We'll look for a route with weather bad enough to give us a workout," Major Henderson explained, "but not so bad it will hold us up."

The major checked the weather report and maps himself and then talked it over with the duty weather officer. Apparently we had a choice of heading south toward a storm belt building across the Gulf states or north into a broad overcast area in the north-central states.

"We can make about 1,000 miles on each leg," Major Henderson said. "Let's make it Minneapolis."

"That southern weather looks like it's building into a line of thunderstorms, and I never tangle with them if I can help it."

So the major checked the Minneapolis airport. The Radio Facility Chart said the field had jet fuel and

Major Henderson (right) plots his route with the weather officer at Andrews AFB before take-off.

The major rechecks weather at the first stop — Minneapolis.

Next stop is Salt Lake where the ANG base gives the T-33 rapid servicing.

was open to transient traffic. It also had a GCA unit.

The chart also helped Major Henderson fill out a detailed flight card for the first leg. We wanted to fly along the airways. That meant nine check points. For each point the major wrote down the radio frequency, call sign, magnetic heading, distance to checkpoint, cumulative distance, estimated time of arrival, and fuel remaining.

He filed his clearance form, stuffed the flight card in one of the six huge pockets of his flight suit and said, "Let's go."

Our bird was ready for us out on the line, but the major gave it a nose-to-tail inspection, looking into each gas tank and then securing the cap and cover himself, checking the wheel wells, the tail pipe, and the control surfaces.

The on-the-ball ground crew loaded the plane for us, hung a ladder on the side so we could climb into the cockpits without walking on the wings, helped hook us into our chutes and safety belts, pulled the safety pins from our ejection seats and then rolled up the starter unit.

"That's better service than you'll get the rest of the trip," Major Henderson remarked. "Relax and enjoy it."

The jet turbine whined shriller and shriller and then the fire was lit. The ground crew towed off the starter, pulled the chocks, and waved us on.

"You might keep an eye on the fuel gauge," the major said. "It goes pretty fast down here."

It read 800 gallons.

At the end of the runway a C-45 courteously waved us ahead. He knew how fast a jet burned fuel on the ground, so we got first priority for take-off. It was 9:05 a.m. The fuel counter read 760. We had used forty gallons already—more than I use in my Chevy in a month.

It was a smooth, easy take-off. No extra sensation of speed, though we didn't leave the ground until the air speed indicator showed 115 knots, about 135 miles an hour.

We climbed steadily and swung past the spider-web streets and broad marble buildings of Washington onto our first heading.

When the major called into the first checkpoint, Front Royal, Va., sixty-four nautical miles out—about seventy-four statute—we were still climbing. We didn't hit our altitude, 35,000 feet, until we flew over the second check-point, Morgantown, Penna. When we leveled off, Major Henderson calculated our ground speed at 440 knots, about 510 miles an hour.

We had been in the air almost an hour when we passed Toledo. I glanced at the fuel indicator. It read 466 gallons. Almost half of the fuel was gone, but we were only a third of the way to Minneapolis.

I asked the major if there was any chance we'd make it.

"With fuel to spare," he answered. "One of the important things we work on in these flights is cruise control; that is, the most efficient fuel consumption. Flying jets you watch fuel all the time. I just ran a six-minute fuel check and found we're using it now at the rate of 225 gallons an hour. We're eighty minutes out of Minneapolis, so we should have over 150 gallons left when we get over the field. That will leave plenty for a GCA approach. I try never to land with less than 100 gallons reserve.

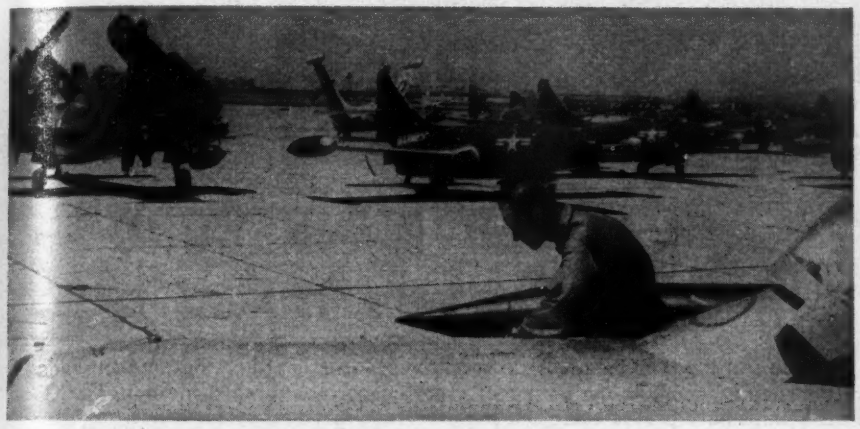
"A jet burns fuel fast on the ground and climbing, but when it gets above 30,000 feet it begins to get fairly efficient."

He made it all right. About eighty miles out of Minneapolis Major Henderson began his let-down. He called the tower and requested a GCA approach. It was not just practice. There had been a ten/tenths undercast since the middle of Wisconsin, and Minneapolis weather told us the ceiling there was 600 feet.

The let-down and approach through the murk were precision work, both on the part of the controller and Major Henderson. We broke out, wheels down, on the final approach, the rooftops of a Minneapolis suburb flashing dull gray beneath us. We touched down at 11:40 a.m., Washington time.

The ground crew was shorthanded, and it was some time before we could get a fuel truck and oxygen cart. The major offered to help with the refueling, but still, with the paper work of getting fuel, flight planning, and

(Continued on page 67)



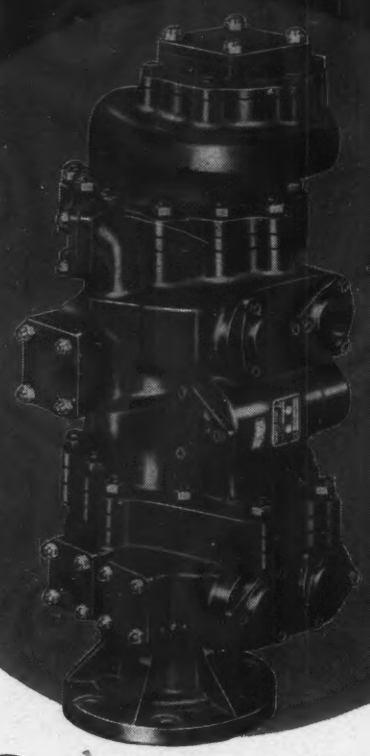
The West Coast layover is made at the naval air station at Alameda, Calif. Both Major Henderson and his passenger favor sleep over a night on the town.

One of the return trip stops is at a civilian field at El Paso, Texas.

ABOUT THE AUTHOR

Dick Fryklund was in the AAF in World War II. He served overseas in the ETO, flying as a radar observer in P-61 Black Widows. He's been in the Sunday editorial department of the Washington Star *for about three years.*

There IS a BIG difference in fuel pumps



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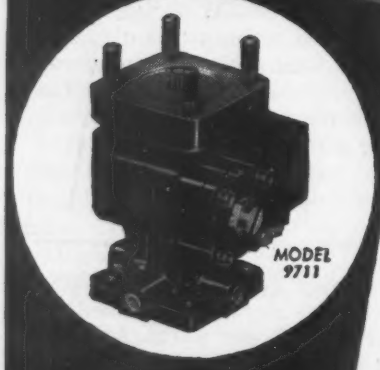

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clearance it took us an hour and thirty minutes to get off the ground once more.

The jet age, I reflected, is not the greased lightning operation the public thinks. It was easy to see why the Pentagon pilots find it impossible to do much cross-country flying on government time.

Major Henderson told me to look at the brighter side. The Minneapolis stop was shorter than most, he said. "I've waited as much as four hours for a fuel truck. If everything goes as smoothly with the rest of the trip as with the first leg we'll be lucky."

But the next leg was even smoother. We headed for Salt Lake City, about 1,075 miles away. The clouds broke up and disappeared over the Great Plains. Ahead were the Rockies. As we approached them we climbed to 45,000 feet. The sky was a deep blue. From that altitude the mountains flattened out into brown and yellow and tan ripples. Not a living thing was in sight for hundreds of miles in all directions. The whole sky and the whole earth were ours.

That's when a pilot knows the full glory of flying. A Pentagon desk can be forgotten. The paperwork, the crowded air fields all fade from memory. There's nothing in the world but the dark blue sky and the soft brown earth.

It was clear over Salt Lake City. Major Henderson rolled the T-33 over on its back so he could more easily clear the area and find the right field. When he spotted it he eased back on the stick and split-S'd and rolled and split-S'd and rolled . . . until we were down in the beautiful valley that holds Salt Lake City.

We landed at the National Guard base there.

"The National Guard does a lot of weekend flying, so their bases make a good place to stop on these trips," the Major said.

It seemed at first he was wrong, for the crew chief complained bitterly that he was shorthanded—all his men had been taken from him, but people kept coming in asking for fast service.

He was shorthanded all right, but the men he had hustled and got us off the ground in an hour.

The next leg was to San Francisco, a short flight of only 630 miles with plenty of time and fuel for an acrobatic workout. We did rolls, loops, and immelmanns over the California Valleys, straightening the kinks out of Major Henderson's flying technique, but tying his passenger into knots.

We flew on to San Francisco, circled the Golden Gate while we watched a fleet of hundreds of fishing boats scuttle through the water for home and then called in to Hamilton Field for landing instructions.

But Hamilton hospitality was taxed past the limit. The tower told us there was no parking space left; could we please try the Navy field at Alameda?

The Navy was more than kind to the Air Force, but it had even more and longer forms to fill out when we landed. There was no transportation available for stray Air Force personnel, however, so the major and I were stuck with a $7 taxi ride into town and a hotel bill.

Oddly enough a night on the town in San Francisco was no thrill. By 10 p.m. West Coast time it was way past our bedtime, Washington time, and our tails were dragging from those long hours on a parachute pack.

We hit the sack.

It was easy to get up with the sun the next day, however, and get an early start on the long homeward trip.

We headed for Colorado Springs, climbing high to avoid a line of thunderstorms. Some towered over us even when we were at 45,000 feet. We gave them a wide berth.

"There are two things any good pilots respect," the major said, "thunderstorms in the summer and icing in the winter."

Major Henderson showed me on that leg how a jet pilot often flies at high altitude hemmed in between the sound barrier and a stall. The B-47 pilots call this the coffin corner. With our speed close to Mach point eight, a slight drop of the nose increased our speed a few miles an hour and sent us into the buffeting that marks the sound barrier. Too much back on the stick and we lost a few miles an hour, bringing on a stall. So the trick is to hold your altitude and airspeed precisely.

We had another smooth stopover in Colorado Springs, but I thought the major earned his flight pay on the take-off. It was a hot day, ninety degrees officially, but closer to 120 on the runways. The runway was short and the altitude of the field was 6,172 feet. Our bird had been a little sluggish on the take-offs, so it seemed a good idea to increase the margin of safety.

Major Henderson told the ground crew to refuel the plane only partially —keep it light. But the over-eager crew gave us a full load, including the 100-gallon wingtip tanks.

We took off with the major's finger hovering over the tip-tank jettison button. "If it looks like we won't make it," he said, "we'll get rid of those tanks."

Theoretically the tanks would be thrown free of the plane to burn harmlessly on the ground.

I was glad the theory was not tested out; we rose slowly as the end of the runway flashed underneath us.

The leg to El Paso was a breeze, though we had to fly a dog-leg course in order to dodge the White Sands proving grounds. We picked a civilian field at El Paso, because the hospitality was well-known to be nil at the security-conscious SAC base there.

Coming in we simulated a flameout. At 10,000 feet over the field—after getting permission from the tower—Major Henderson reduced power and then dropped the dive brakes to simulate a complete loss of power. He made a wide, 360-degree turn, trying to lose exactly 5,000 feet.

He was slightly high when we came over the field again. He corrected that by loosening the turn a bit on his second swing around. The correction was a good one, for when we completed the circle we were ready to touch down.

The next leg was to Memphis, Tenn., past more thunderstorms. We stopped at a Navy field again to be sure of fast refueling.

The last hop was the most troublesome. Line after line of thunderstorms made us zig-zag across eastern United States. The static electricity hexed our radio just as we flew past the Oak Ridge area, and the major predicted the nation's defense forces would feel a little uneasy about a silent plane flying by.

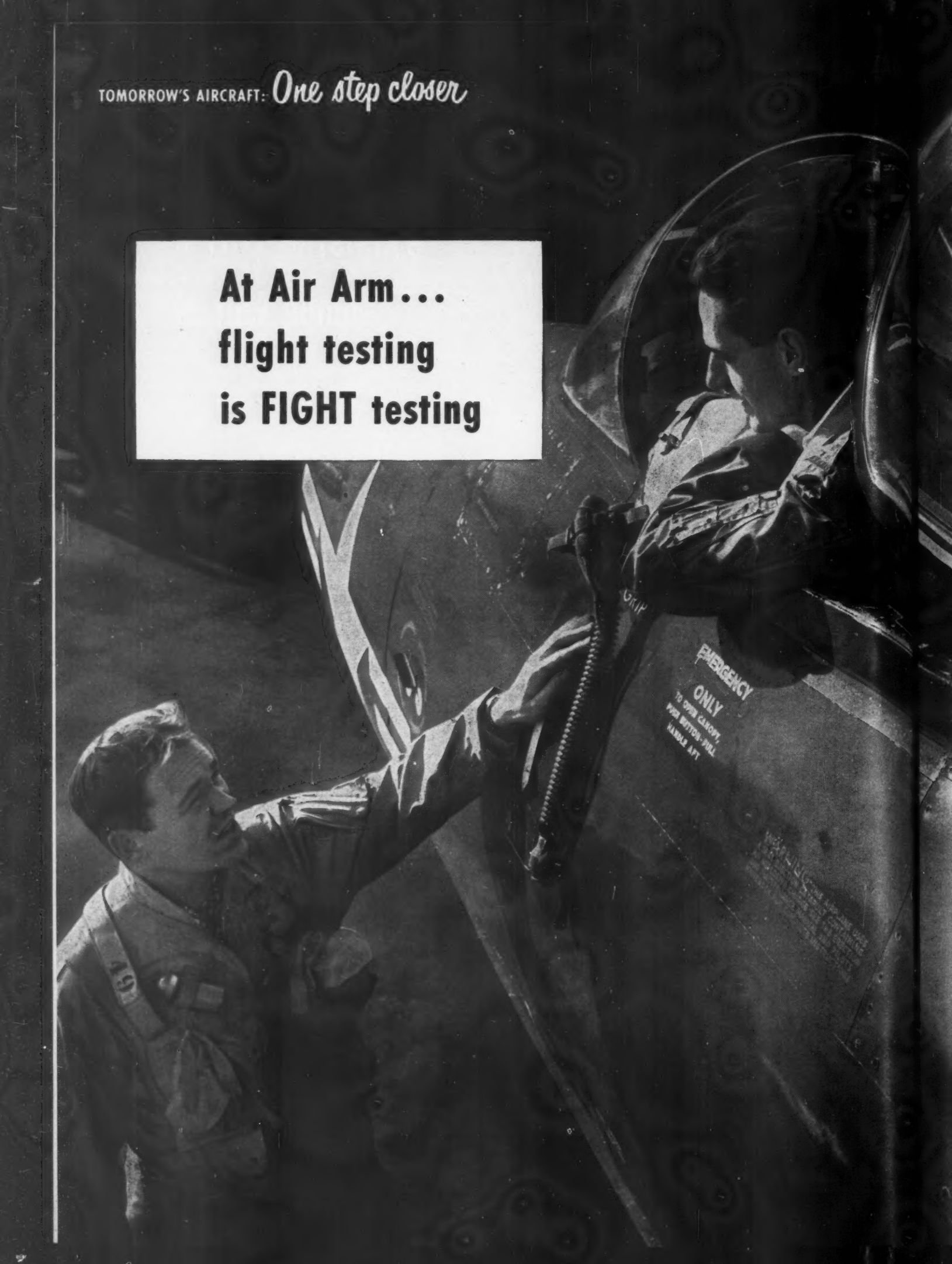
He was right. From out of the sun came two F-86s in a long, curving pass at us. Apparently we looked harmless, for after a hard look they disappeared.

Washington was very hazy, and we considered calling for help from GCA. But we sat down in the dense haze as dusk closed in. There was more paperwork before we said goodbye and drove home through the night—me for a long sleep and a late show-up at the office next day; Major Henderson for a short sleep and an early show-up at the Pentagon.

We had flown 6,000 miles across twenty states, piling up more than seventeen hours flying time. Pretty good for a Pentagon desk jockey.

But even better for me—and you—to know that Major Henderson and other desk officers like him are keeping themselves ready to fly.—END

TOMORROW'S AIRCRAFT: *One step closer*



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Chief Project Pilots, Tom Lloyd and Fred Hughes, join on the ground, prior to debriefing, following an afternoon air-to-air gunnery check on a fighter armament system.

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■ An Air Force master sergeant, **Herbert N. Ford,** has been honored by the **United Nations Student Organization** with the group's **1955 Ambassador of Goodwill Award.** Sergeant Ford contributed amounts to the **International Student Trust Fund** that enabled a foreign student to attend college in the US. The award, an engraved plaque, was given by UNSO president **Krishen Mathur of India** (see cut).

■ The use of military rank when referring to AF physicians, dentists, and veterinarians is a thing of the past. A new AF regulation **directs that they be addressed as "doctor."** When addressing them in correspondence, however, the official service rank is used.

■ The AF's **first male nurse is Ralph L. Malien,** of Little Valley, N. Y. He received his commission in the Air Force Medical Service in October, but was a nurse before the AF claimed him. He took his training at the **Bellevue School of Nursing, Bellevue Hospital,** New York City, and has served in the Medical service of both the Navy and Air Force.

India's Krishen Mathur, UNSO president, gives Goodwill award to M/Sgt. Herbert Ford. Dorothy Drake looks on.

■ The first of 600 **dogs to be used to guard restricted areas** at major bases have received their diplomas at Fort Carson, Colo. The AF is recruiting dogs—paying $125 for an acceptable one—for sentry duty training. The school at Fort Carson puts **German shepherds** through eight weeks of rigid training. The first three weeks are devoted to obedience instructions, where the trainer and his dog get to know each other. They are together during the eight weeks, and **are assigned duty together.** The pair becomes inseparable, and when the master becomes ill or takes a leave, the dog is temporarily withdrawn. And, in cases where the airman leaves the service, the dog is sent through the school again with another master This use of dogs for sentry duty was tried with success as early as 1952 at bases in England.

■ The British government has created a **new post—Chairman of the Joint Chiefs of Staff.** Previously, the heads of the three British services—land, sea and air—have operated **without a chairman.** Chosen as first chairman was **Sir William Dickson,** Marshal of the Royal Air Force, presently Chief of the Air Staff. **Air Marshal Sir Dermot Boyle** will succeed him in the RAF position.

■ AIRPOWER NOTES . . . **USAF Air Weather Service plans to move its Severe Weather Warning center** from Oklahoma City, Okla., to Kansas City, Mo. Tentative moving date is **late January 1956. . . . United Airlines** has ordered thirty jet-powered DC-8 airliners from the **Douglas Aircraft Co.** The order amounts to $175,000,000. **American Airlines** has also ordered, for $135,000,000, thirty Boeing 707s, with delivery **to begin in June 1959.** . . . The AF is looking for **a good method for keeping seagulls off its runways.** A recent accident at Boston's Logan Airport was caused by an airplane-seagull collision. . . . At Bentwaters AB, England, **Lt. Don Fleming,** of Houston, Tex., roared down the runway at 107 mph—in a truck! He was taking part in a **test of a new nylon net aircraft barrier.** . . . Belgium has built **two giant air bases in the Belgian Congo.** . . . In compliance with Hq. USAF's request, AF commanders plan to give **lenient holiday leaves** between December 19 and January 9. . . . A German airplane, the Do-27, has been produced in Spain by the **German Dornier Co.** It is a two-seater with a 250-hp Continental engine.

A/2C Theodore Newton and his German shepherd on guard. They're one team in new SAC program for air base defense.

■ STAFF CHANGES. . . . **Maj. Gen. Paul E. Ruestow** has been released from command of the Air Materiel Forces, Pacific Area, and assigned to Hq., AMC, with duty as Director of Personnel and Support Operations. . . . **Brig. Gen. Alvord V. P. Anderson** has been named Commander of Warner-Robins AMA, Ga. He was previously at AMC Hq as Director of Personnel and Support Operations. . . . **Brig. Gen. William T. Hudnell** has been placed in command of Air Materiel Forces, Pacific Area. . . . **Brig. Gen. James L. Jackson** was named Deputy Commander, San Bernardino Air Materiel Area, Norton AFB, Calif. . . . **Maj. Gen. Walter R. Agee** will assume command of the AF civilian auxiliary, the Civil Air Patrol, upon the retirement of **Maj. Gen. Lucas V. Beau** next year. General Agee is now vice commander. . . . **Brig. Gen. Stanley T. Wray** is the new Chief, Electronics Defense Systems Division, of AFC's Directorate of Procurement and Production, effective December 15. . . . **Maj. Gen. Kingston E. Tibbetts** is the new Comptroller at Hq., AMC, Wright-Patterson AFB, Ohio. He was previously Commander, Warner-Robins Air Materiel Area, AMC, Robins AFB, Ga. His new duty becomes effective December 15. . . . **Maj. Gen. Charles F. Born** retired on October 31. He had been Commander of Crew Training Air Force.—END

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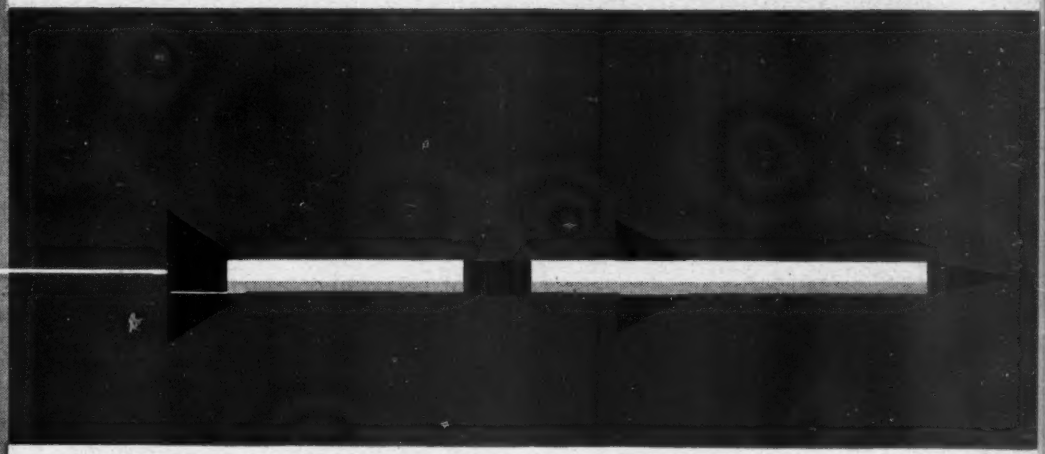

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Let's Whittle that Cargo Weight

Colonel Moneysaver didn't go far enough in his September "Jet Blast." If it is agreed that any future military operation, large or small, will consist of heavy air strikes followed by specially trained and equipped occupation forces, it becomes apparent that everything in the theater must get there by air. Neither time nor elementary logic, however, will permit the vast entrainment of Army air vehicles which today's trends indicate. The issue must be decided before their limited range stuff could get there.

There will remain, nevertheless, a great field for constructive action by aviation enthusiasts within the Army organization. Some broad decisions with regard to what they are going to ask others to carry for them to that distant scene of contention are long overdue. If they work intelligently at this, they may even make room to carry along some disassembled liaison planes.

A glance at the catalogs of the Army Service Forces shows that the potentials of weight reduction have only been nibbled. As a result we are today building cargo planes with floor and frame stresses and cargo volume adapted to military equipment that is thirty percent to fifty percent heavier than its mission requires.

In the summer of 1945 this writer personally approached the engineering heads of all West Coast prime airframe companies, and was assured by each of them that all possible moral and tangible support would be given to any movement to lighten military paraphenalia. A. E. Raymond, Douglas Vice President-Engineering, said he would be willing to lend top design personnel to any such movement properly sponsored. Mac Short, then Vice President-Engineering at Lockheed, volunteered to handle negotiations with the vehicle builders, makers of jeeps, peeps, trailers, gun carriages and military construction equipment. J. K. Northrop loaned me notes from several trips by his own enginers exploring Army and Ordnance interest in specific re-design proposals along the same line. Wellwood Beall, Boeing Engineering Vice President, wrote me in October of that year:

"I think the idea is a good one . . . from a technical standpoint the idea is quite practical. A great deal of weight can be eliminated from the equipment used by the Army. Also, aircraft organizations and facilities are admirably fitted for the job.

"As far as the execution of the job is concerned, I doubt the practicality

of assembling a group of people from the various aircraft companies together in a separate group to actually do the design work. I think it would be more practical to assign one or more products or items to each aircraft company interested.

"During the Mead Subcommittee hearings in Seattle, Senator Kilgore did raise this same question. He asked me if I thought any great amount of weight could not be designed out of Army equipment and would that not help the air transportation of armies a great deal. To both of these questions I answered in the affirmative."

Maj. Gen. E. M. Powers, then assistant Chief of the Air Staff, responded to my inquiry in September 1945:

"The Air Forces are, of course, extremely interested in the weight element of all supplies which must either in peace or war be carried by military transport. Since the design of the vast bulk of the equipment required for an airborne army is, however, the responsibility of the Army Service Forces, it is suggested that that agency is the proper one to contact to determine the interest of the government in sponsoring your proposal."

Thus more than ten years ago there was unanimous enthusiasm and readiness in both the aircraft industry and the Air Force in making military air transportation more efficient. Tens of millions have since been spent on developing and building better USAF transports.

In the meanwhile, however, the one factor that could add more efficiency to military air transport than turboprop engines and all other design advances combined remains a neglected stepchild of military handbook logic and divided responsibility. With a few experimental exceptions where the ground forces with their chunks of iron found their position utterly indefensible, no air-minded attack is in evidence. The best efforts publicly reported have saved large poundage but lack the vital effort to gain the last ounce that is axiomatic in aviation. Such an attitude was reported to me by competent engineers who interviewed leading ground officers at the Pentagon and Fort Monroe in 1945.

One reported: "Ground vehicles are largely designed by Army Ordnance, and special equipment such as scrapers and bulldozers by the Corps of Engineers, but both have a tendency to buy off the shelf."

"All agreed," this engineer continued, "that something should be done, but said that the inertia would be very great in Ordnance. The only two reasons advanced were:

a) 'We do not believe it practical to change the whole automotive industry,' and

b) 'We would have to give special training in repair and maintenance, and change all our technical orders.' "

The same engineer reported that the real advantages of redesigning airborne equipment *seemed obscure* in the minds of many, and recommended that any presentation should include

(Continued on following page)

examples of the logistics advantages of the weight saved. He did report that weight was being given attention in new equipment requirements, and that design specifications were soon to be released for a lightweight jeep. His report added that an airlanded operation of one airborne division called for 327 quarter-ton trailers and 289 one-ton trailers, as part of their equipment.

The weight-saving potential here is far from obscure, but perhaps can be seen in true perspective only by aviation people.

Here, then, is a great challenge to Army aviation enthusiasts, starting with the premise that military air transport is at least as expensive as the commercial version, and that any article not specifically designed for weight saving can be appreciably lightened. All factors considered, obsolescence should be faced here as boldly as in airplane design itself. This applies to field kitchens and utensils, hospital equipment, stretchers and cots, vehicular and construction equipment of all kinds, ordnance and ultimately rifles and side arms and even the metalwork of uniforms, Where an airplane is designed to a specific mission, a pound of weight saved in its intended cargo may save several pounds of airframe.

As titanium becomes more plentiful, small tanks and most artillery can be made efficiently air-transportable, and judicious use of integrally stiffened steel, aluminum and magnesium shapes can certainly save hundreds of pounds in communication equipment, shipping containers, generators, furniture, and thousands of other items.

As of a decade ago, this undertaking seemed a must, in the minds of aviation people; today it is a necessity of a re-shaped strategic outlook.

There is nothing about this tremendous job that is beyond existing surplus capabilities of small defense plants accustomed to making aircraft parts out of light metals and alloy steels. Most of them have some engineering capacity, or in groups could establish central design staffs. The work that must be done in this direction is virtually endless, aggravated by the realization that until it is well under way the ironworks will still be turning out gun carriages to Civil War weight criteria.

Here is a topside decision that only Congress can touch—with a nation ready to applaud the right answer—and that right answer is known to every high school boy, regardless of who operates the airplanes.

General Waite Lifter

Why Not a Hangar for Old Airmen?

Since 1851, soon after Gen. Winfield Scott put up $118,000, part of the tribute levied on Mexico following the Mexican War, the Army has maintained a home for its retired enlisted personnel. Air Force men have been residents at the Home since the separation of the services in 1947.

And they probably will continue as guests of the Army until the place falls down—not that there is any danger of collapse, since the buildings are for the most part of modern construction. They will be in residence for the unbeatable reason that they have no place else to go.

The time has come for us to part company with our hospitable brothers-in-arms and set up housekeeping for ourselves. Selling the powers that be on the idea should be a cinch—if the same method used by the Army to finance their operation is used by the Air Force.

Ever since General Scott got the United States Soldier's Home (to give the place its proper name) off to a rolling start the place has been self-propelled. It is supported by contributions from the Regular Army and Air Force enlisted people, and from fines and forfeitures of enlisted persons. It also receives the proceeds from the unclaimed estates of deceased enlisted personnel as well as the effects of deserters.

The Home has never received a nickel in appropriated funds. It is the property of the enlisted personnel of the Army and the Air Force.

The present population is 1,800—and expected to make a dramatic climb five years hence when the first large crop of twenty-year men retire. In spite of lofty plans, driving ambitions and boundless faith, not all the twenty-year retired, nor for that matter, the thirty-year retired, will be

able to make it go. A portion of them will come upon very sad times.

Some of them will wind up as charges of the state, some as unwelcome guests in relatives' homes, some as solitary roomers in dingy quarters in the less desirable sections of town. Because of the large numbers of men to be retired, a proportionately large number will fall into the dilemmas ticked off above. *C'est la vie.*

Naturally, few men in the full vigor of youth aim toward residence in a home of any kind—but who can tell in which way the ball will ricochet? The fact is that even in these lush times the Soldier's Home has a waiting list.

The taxpayer should have no objection to the establishment of an Air Force Home since he is not expected to bankroll it. Congress would be needed only to give its blessing. By diverting funds presently deducted from Air Force people—the fines, forfeitures, etc.—we could go into business for ourselves.

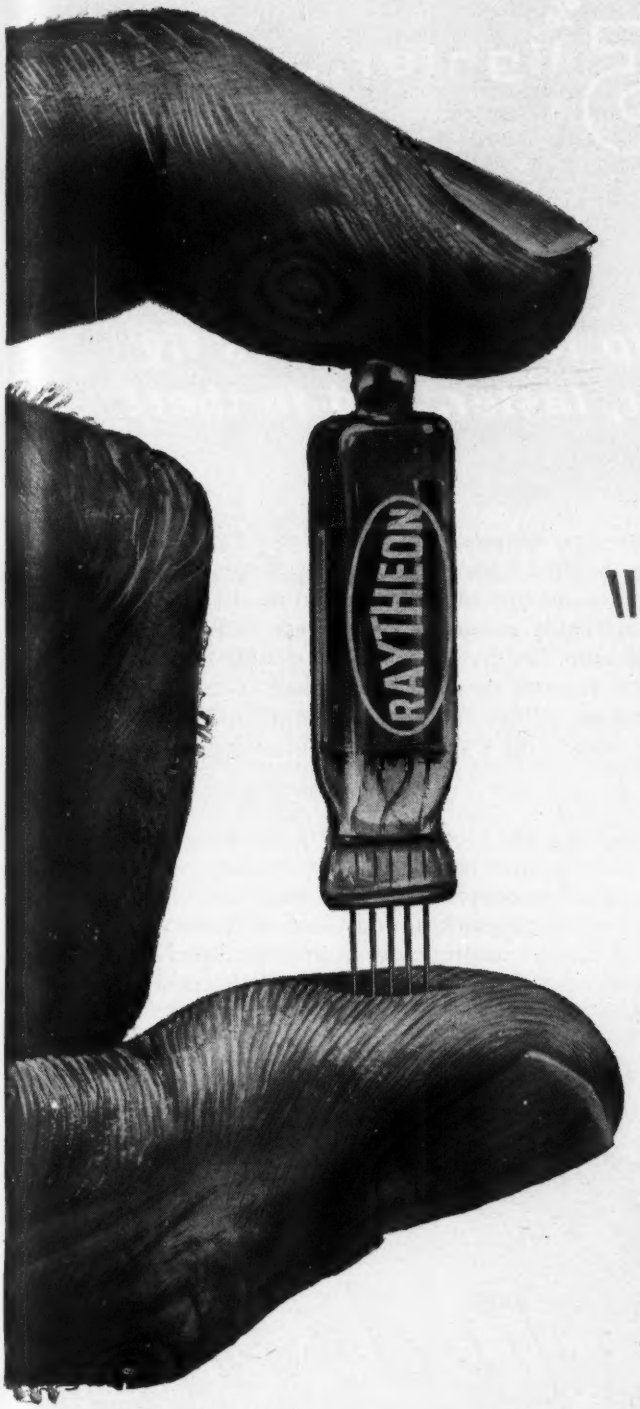
This would not hurt the Soldier's Home since they already have their own buildings—paid for, too—and they would not have to divide their services between the Army and the Air Force.

If spot cash is needed to erect the buildings, buy the land and all the rest, I see no difficulty in marketing the necessary bonds and securities. A quick look at the books would convince even the most tight-fisted investor that this is a proposition as liquid and lucrative as an old well. Since *all* Air Force enlisted people are Regulars, all contribute and even the heftiest debt could be wiped out in no time—and with no additional assessment.

Like the Soldier's Home, I suggest that the Air Force Home be established in Washington. This region has much to recommend it—it is close to several operating air bases, Hq, USAF, and the city itself is a thoroughly congenial, cosmopolitan place.

The Army has a Home, the Navy has a Home—why shouldn't the Air Force have one too?

M/Sgt. Frank J. Clifford



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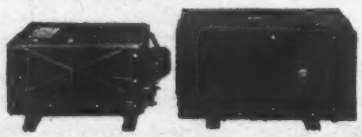

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The Research and Development Job

Winning Tomorrow's War

Here's how one inside observer believes the ARDC mission could be performed better, faster, and cheaper

By Richard D. Coons

THERE can be no ignoring the fact that we are in an era of technological emergency. The first nation to develop an international ballistic missile will hold the fate of the world in its hands. To lag is to lose. The Air Research and Development Command has said that "any contribution which research and development can make to Western survival is *being made now.*" ARDC is fighting tomorrow's war today!

There has been an increasing awareness at top governmental levels of the vital importance of military R&D to the security of the nation. Along with this long-overdue awakening has come a series of suggestions for putting more talent into our military programs. Some say the solution is to put all military R&D under civilian control. This would be a serious mistake. The USAF must have the responsibility for, and is perfectly capable of, managing its own program. *Within the Air Force, there are already available highly trained officers who are eminently qualified both to establish the content of the R&D program and manage its contractual performance.*

The present arrangement by which ARDC performs its mission is far from perfect, although it is certainly superior to that of the Army and Navy which allows independent R&D programs to be carried out by the various Corps and Bureaus. (The Hoover Commission Report to the Congress on research and development in the government states, "The traditional organizations for research and development of the Army and Navy are not well suited to the needs of a modern weaponry development. A weapons system is frequently made up of elements developed by two or more corps or bureaus. This compartmentalization of weaponry development between a number of independent technical corps, in the Army, and technical bureaus, in the Navy, makes effectiveness and efficiency in the operations of today most difficult." With respect to Air Force organization for research and development, the report notes, "This organization [ARDC], of recent origin, is in a framework well suited to the needs of modern weaponry research and development. The Task Force Subcommittee commends it.") But there are a number of things which should be done to strengthen the ability of ARDC to gain and maintain technological supremacy.

First, let us consider the USAF-stated mission of the Air Research and Development Command:

"Attain and maintain qualitative superiority of materiel and conduct or supervise scientific and technical studies required for the establishment of the Air Force mission.

"Seek new basic knowledge from which improved aeronautical equipment, materiel, weapons and techniques can be developed.

"Undertake the development and recommend the adoption of appropriate new and improved devices and systems for the conduct and support of air warfare, including complete weapons system, techniques, and procedures applicable to Air Force purposes."

How does ARDC go about fulfilling its mission? "We are trying to function primarily as a proper liaison between the military operators who need new and better equipment, and the scientific brains of the industrial and academic worlds who can develop it or contribute knowledge to the development problem," says Lt. Gen. Donald L. Putt, former Commander of ARDC and now Air Force Deputy Chief of Staff for Development.

"ARDC's job is not to actually do the research and development job," continues General Putt. "For that we rely primarily on industry, universities and civilian research organizations. Our job is to tell these groups the problems the Air Force wants to solve, and to program, finance, monitor and evaluate the work necessary to solve them. In turn we keep the Air Force informed on the kind of equipment they are likely to get at any given time because of the 'state of the art' in any particular field."

General Putt's statement makes a lot of sense. Don't create a large organization to do what industry and universities can already do better. If ARDC were really to operate in this fashion there would be no reason for civilian participation or control except through contractual or consultant arrangements.

But is ARDC really following the line laid down by General Putt? Let's

(Continued on page 81)

Better Weapons Systems Management Control

Three new command functions have recently been established within the Air Research and Development Command (see photochart on pages 78 and 79). Most significant of the changes is the establishment of a Deputy Commander for Weapons Systems. According to ARDC, "It has become increasingly evident that the management of weapons systems should be consolidated with the planning and policy-making functions at ARDC headquarters, to provide better management control."

Heading the new office is Maj. Gen. Albert Boyd, former commander of the Wright Air Development Center at Dayton, Ohio. Under him are Directorates of Systems Management, Systems Plans and Nuclear Systems. In addition are three top management functions—Assistants for Aircraft Systems, Guided Missiles Systems, and Electronic Systems. The new slots were set up to plan and manage the entire Air Force weapon systems program in specific areas in order to attain a proper balance of superior weapons for all combat missions.

Through the Directorate of Systems Plans, headed by Col. Ernest N. Ljunggren, qualified contractors will be informed of secret system requirements of ARDC. The contractors will receive this information on the basis of their preliminary design capability, the interest they show in a particular area, new concepts produced or suggested by them, and their existing facilities.

The other two major posts are the Deputy Commander for Research and Development (Maj. Gen. Floyd B. Wood), and the Deputy Commander for Resources (Brig. Gen. Kurt M. Landon).

The Air Research & Development Command

An AIR FORCE Magazine Photochart

Corrected as of October 1, 1955

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Baltimore, Md.
Lt. Gen.
Thomas S. Power

2 **Vice Commander**
Baltimore, Md.
Maj. Gen.
John W. Sessums, Jr.

3 **Executive**
Baltimore, Md.
Col.
Joshua T. Winstead, Jr.

4 **Ass't for Western Development Division**
Inglewood, Calif.
Brig. Gen.
Bernard A. Schriever

5 **Ass't for Aircraft Nuclear Propulsion**
Washington, D. C.
Brig. Gen.
Donald J. Keirn

6 **Plans and Programming Office**
Baltimore, Md.
Col.
William S. Rader

7 **Staff Judge Advocate**
Baltimore, Md.
Col.
George Cechmanek

8 **Adjutant**
Baltimore, Md.
Col.
Raymond C. Lewis

9 **Chaplain**
Baltimore, Md.
Col. John J. Wood

10 **Director of Information Services**
Baltimore, Md.
Col.
Albert A. Arnhym

11 **Inspector General**
Baltimore, Md.
Col.
John W. Carpenter, III

12 **Surgeon**
Baltimore, Md.
Col.
Arthur L. Streeter

13 **Deputy Commander, Resources**
Baltimore, Md.
Brig. Gen.
Kurt M. Landon

14 **Ass't Deputy Commander, Resources**
Baltimore, Md.
Col.
James A. McKerley

15 **Director of Installations**
Baltimore, Md.
Col.
DeWolfe H. Miller

16 **Director of Personnel**
Baltimore, Md.
Col. Marcellus Duffy

17 **Director of Manpower and Organization**
Baltimore, Md.
Col. Robert M. Grek

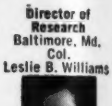
18 **Comptroller**
Baltimore, Md.
Col.
Milton E. Godfrey

19 **Director of Material**
Baltimore, Md.
Col.
Alexander D. McEwen

20 **Director of Operations**
Baltimore, Md.
Col. Fred W. Miller

21 **Director of Procurement**
Baltimore, Md.
Col. Lee W. Fulton

22 **Commander, 6590th Support Group**
Baltimore, Md.
Col.
William G. Bowyer



26 **Director of Research**
Baltimore, Md.
Col.
Leslie B. Williams

23 **Deputy Commander, Research and Development**
Baltimore, Md.
Maj. Gen.
Floyd B. Wood

24 **Ass't Deputy Commander, Research and Development**
Baltimore, Md.
Brig. Gen.
Marvin C. Demler

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Baltimore, Md.
Col.
Donald W. Roberts
(act'g)

27 **Director of Development**
Baltimore, Md.
Col.
John R. V. Dickson

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Baltimore, Md.
Col.
Ernest N. Ljunggren
(act'g)

30 **Ass't for Guided Missile Systems**
Baltimore, Md.
Brig. Gen.
Don R. Ostrander

31 **Ass't for Electronic Supporting Systems**
Baltimore, Md.
Brig. Gen.
Ivan L. Farman
(as of 12/1/55)

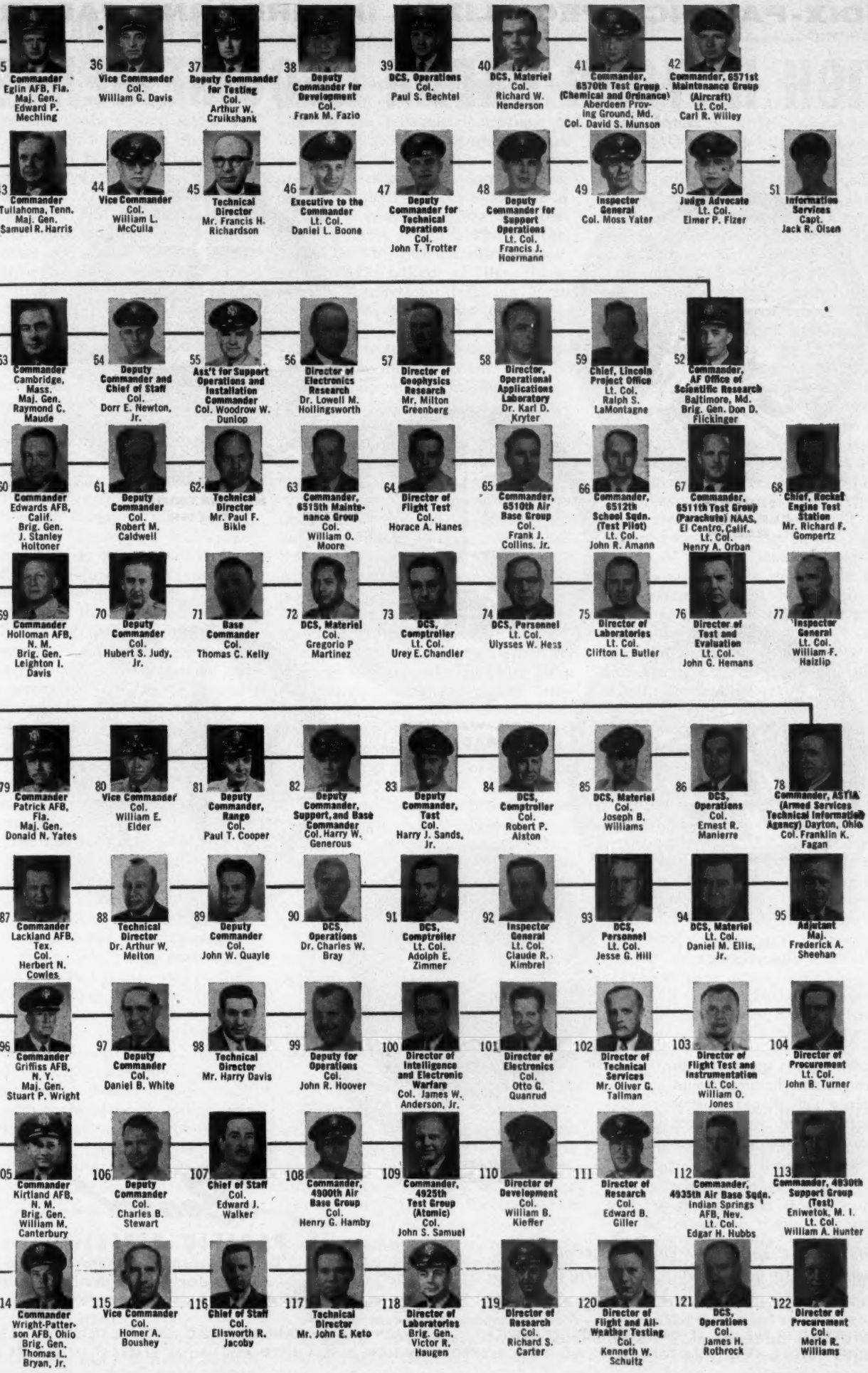
32 **Director of System Management**
Wright-Patterson AFB, Ohio
Brig. Gen.
Howell M. Estes, Jr.

33 **Director of Systems Plans**
Baltimore, Md.
Col.
Ernest N. Ljunggren

28 **Deputy Commander, Weapon Systems**
Baltimore, Md.
Maj. Gen.
Albert Boyd

34 **Director of Nuclear Systems**
Wright-Patterson AFB, Ohio
Brig. Gen.
Ralph L. Wassell

A Air Force Armament Center
B Arnold Engineering Development Center
C Air Force Office of Scientific Research
D Air Force Cambridge Research Center
E Air Force Flight Test Center
F Holloman Air Development Center
G Armed Services Technical Information Agency
H Air Force Missile Test Center
I Air Force Personnel and Training Research Center
J Rome Air Development Center
K Air Force Special Weapons Center
L Wright Air Development Center


A
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36 Vice Commander Col. William G. Davis
37 Deputy Commander for Testing Col. Arthur W. Cruikshank
38 Deputy Commander for Development Col. Frank M. Fazio
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40 DCS, Materiel Col. Richard W. Henderson
41 Commander, 6570th Test Group (Chemical and Ordnance) Aberdeen Proving Ground, Md. Col. David S. Munson
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B
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58 Director, Operational Applications Laboratory Dr. Karl D. Kryter
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52 Commander, AF Office of Scientific Research Baltimore, Md. Brig. Gen. Don D. Flickinger
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64 Director of Flight Test Col. Horace A. Hanes
65 Commander, 6510th Air Base Group Col. Frank J. Collins, Jr.
66 Commander, 6512th School Sqdn. (Test Pilot) Lt. Col. John R. Amann
67 Commander, 6511th Test Group (Parachute) NAAS, El Centro, Calif. Lt. Col. Henry A. Orban
68 Chief, Rocket Engine Test Station Mr. Richard F. Gompertz
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74 DCS, Personnel Lt. Col. Ulysses W. Hess
75 Director of Laboratories Lt. Col. Clifton L. Butler
76 Director of Test and Evaluation Lt. Col. John G. Hemans
77 Inspector General Lt. Col. William F. Holzlip
G
H
79 Commander Patrick AFB, Fla. Maj. Gen. Donald N. Yates
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81 Deputy Commander, Range Col. Paul T. Cooper
82 Deputy Commander, Support, and Base Commander Col. Harry W. Generous
83 Deputy Commander, Test Col. Harry J. Sands, Jr.
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85 DCS, Materiel Col. Joseph B. Williams
86 DCS, Operations Col. Ernest R. Manierre
78 Commander, ASTIA (Armed Services Technical Information Agency) Dayton, Ohio Col. Franklin K. Fagan
I
87 Commander Lackland AFB, Tex. Col. Herbert N. Cowles
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89 Deputy Commander Col. John W. Quayle
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94 DCS, Materiel Lt. Col. Daniel M. Ellis, Jr.
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99 Deputy for Operations Col. John R. Hoover
100 Director of Intelligence and Electronic Warfare Col. James W. Anderson, Jr.
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104 Director of Procurement Lt. Col. John B. Turner
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107 Chief of Staff Col. Edward J. Walker
108 Commander, 4900th Air Base Group Col. Henry G. Hamby
109 Commander, 4925th Test Group (Atomic) Col. John S. Samuel
110 Director of Development Col. William B. Kieffer
111 Director of Research Col. Edward B. Giller
112 Commander, 4935th Air Base Sqdn. Indian Springs AFB, Nev. Lt. Col. Edgar H. Hubbs
113 Commander, 4930th Support Group (Test) Eniwetok, M. I. Lt. Col. William A. Hunter
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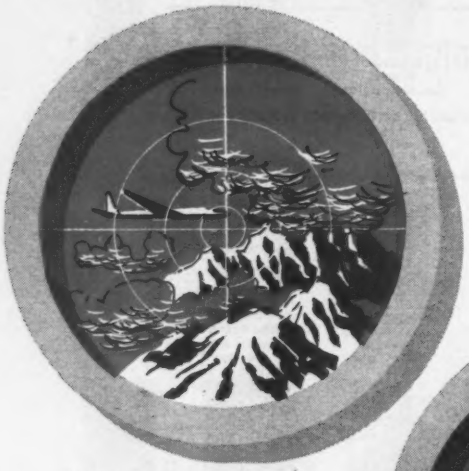

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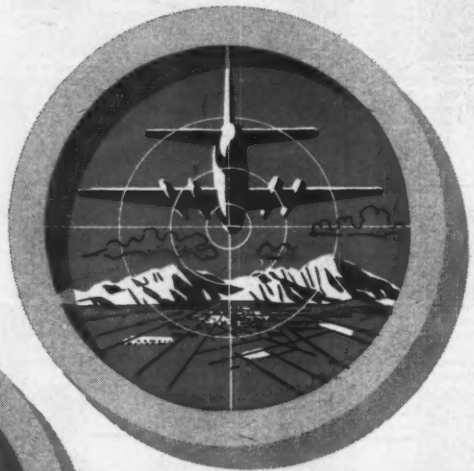
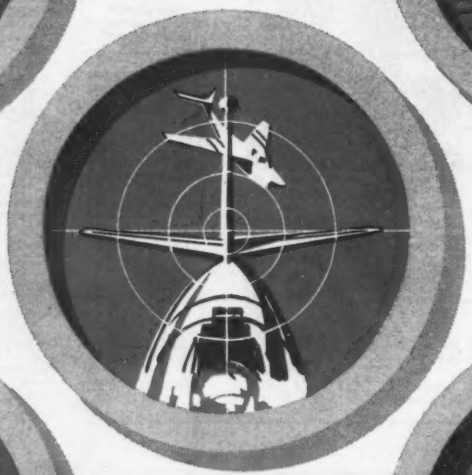


NAVIGATIONAL RADAR



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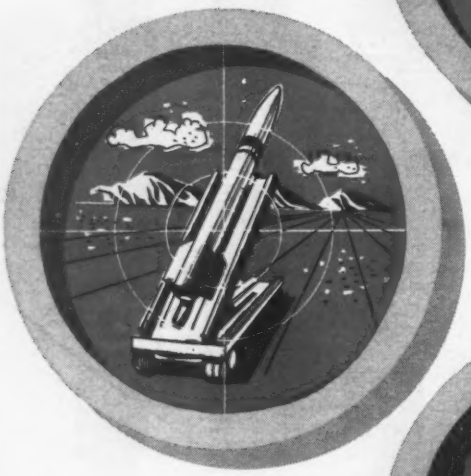

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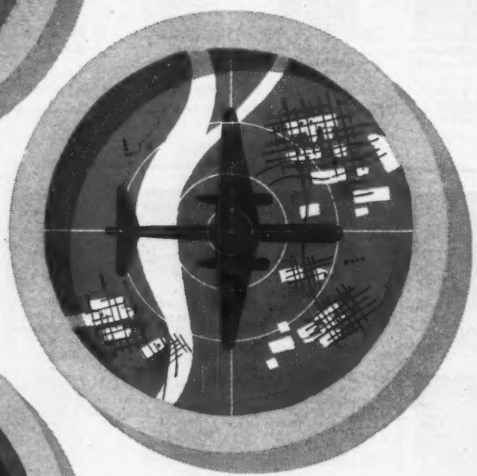

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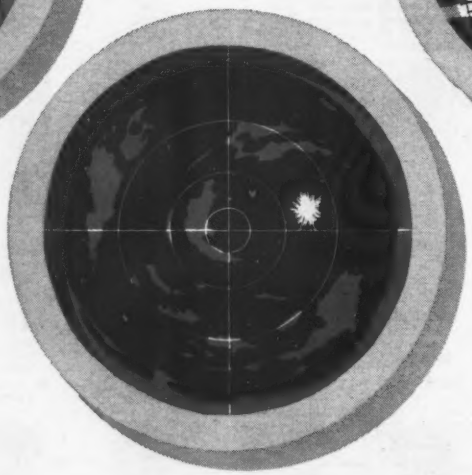

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take a look at the statistics. ARDC has ten Centers and one Division located over the face of the United States. In Fiscal Year 1955 (ending June 30, 1955) it has a budget authorization of about $750 million. About half of this keeps the ARDC machine moving, the other half is scheduled for contracts with industry, universities, and other organizations (including some governmental). According to the ARDC Reference Book dated January 1955, in Fiscal Year 1954 (the latest full year figures available) forty percent of the R&D work dollarwise was done "in-house" and sixty percent was contracted out. This same breakdown of funds for the entire Department of Defense R&D effort is used in the Hoover Commission report already cited. Even after it is realized that the in-house figure includes the costs of letting and monitoring contracts, and thorough testing of the resulting products, the figures are still quite startling. And, as the over-all budget for ARDC is reduced (as it was from FY '53 to FY '54 and again to FY '55) the less elastic fixed costs of running the ARDC machine (pay of personnel, maintenance of facilities, operation of laboratories, etc.) loom larger and larger percentage-wise. There are over 37,000 people directly employed, roughly half military (officers and airmen) and half civilians. Of this total, there are some 2,700 officers and 4,000 civilians who can be considered as qualified engineers, scientists, or R&D managers. The median grade of the civilians is just below GS-12 ($7,040 per year) while almost half the officers are lieutenants with the remainder preponderantly in the junior grades of captain and major. The other 30,000 employees perform clerical, housekeeping, R&D support (technical and non-technical), and testing functions. Quite an outfit to "function primarily as a proper liaison. . . ."

In my opinion, the conduct of R&D by the AF within its own laboratories should be kept under tight control. In-house effort should concern itself only with those areas in which there are no competent contractors—and, even in such cases, positive action should be taken to encourage and develop contractor competence. AF personnel should concentrate their efforts on selecting contractors and on closely monitoring their performance. One good contract monitor can buy the efforts of hundreds of the best qualified engineers, scientists, and managers in the nation.

The Air Research and Development Command has just celebrated its fifth birthday. During its young life, it has had four different commanders. In the face of the recognized urgency of R&D, the need for continuity, and considering the ten-year lead time needed to research, develop, and produce a modern bomber system, it is difficult to understand how such personnel policies can be justified. Hearings in 1954 by the Committee on Government Operations of the House clearly illustrated this deficiency. Even the top-level officers who testified indicated how they deplored the necessity for frequent rotation. But, apparently the merry-go-round can't be stopped—nor can the "music" that accompanies it. (A recent Air Force regulation does establish duty tours of technical officers as three to five years; its provisions do not cover commanders.)

Take a man of extreme capability (as each of the ARDC leaders has been) and move him from a top operational assignment to the command of ARDC. It will take him the better part of a year just to find out what he is managing, for the effort is tremendous in size, alarming in its technical complexity and confused in its political background. He must learn to deal with eager contractors, long-haired scientists, and dubious Congressmen while still being concerned with the reenlistment rate, the aircraft accident rate and, of course, the V-D rate.

No one will argue with the concept that Research and Development must operate in a stable environment. Frequent changes, not only in management personalities, but in management-controlled factors such as plans, priorities, and organizational structure all take their toll from the timely development of new weapons and concepts of warfare.

The quick and easy answer is that there is a back-up of career civilians who provide continuity from one military boss to another. But this is far from the actual case. At the Baltimore Headquarters of ARDC, where long-range R&D plans are established, there are no more than a handful of top-grade civilians. Not one has a position of any real authority. Moving down the line to the various ARDC Centers, you can find any and all combinations of military-civilian working relationships—civilians working for officers, officers assigned to units headed up by civilians, etc. But in any case the civilian's authority is, at best, limited and revokable at any time.

The problem becomes more critical the higher in the organizational structure you look. The House Committee, mentioned above, saw this obvious fault and recommended in its report (known as the Riehlman Report after the Congressman from New York) that "the Assistant Secretary of Defense for Research and Development formulate a uniform policy in the organization of military research and development activities to provide that the civilian technical directors be assigned specific authority and responsibility for technical direction. The relationship between the technical director and the commanding officer should be unequivocably clear." It is interesting to note that a Hoover Commission report of June 1955, entitled *Special Personnel Problems in the Department of Defense,* straightens out the mistaken impression that statutory requirements demand that only military officers can exercise legal responsibilities in the support activities of the military services. After an investigation of the matter, the subcommittee which prepared the report concludes that ". . . there are no specific legal requirements imposed on officers in support activities which cannot be exercised by civilians."

The Riehlman Report has much more to say on the subject of civilian-military relationships in Department of Defense R&D establishments. Insofar as the report points out existing personnel difficulties it is on firm ground. Not so when it considers the suggestion that the solution is to put the military R&D program into the hands of a civilian directed organization, or when it draws the conclusion that the shortcomings in the program can be overcome through a greater degree of participation and control by civilian scientists.

Let's explore the Riehlman Report "civilian participation" suggestion a bit further. Just what quality of civilian engineers, scientists and managers

(Continued on following page)

About the Author

Richard D. Coons, 33, is a technical advisor in the Directorate of Development at Hq., ARDC. He received his degree in chemical engineering from Wayne University in 1943, and has been with the Air Force either in uniform or as a civilian since then. He was a weather officer during World War II, was recalled during the Korean war, and attained the rank of major before his discharge. He has published numerous papers on such subjects as meteorology, radar, and rainmaking in technical journals.

can a government organization hope to hire? Public law establishes civil service salary scales. With but few exceptions (there are approximately eleven top-grade positions within ARDC which command up to $15,000 a year) it allows a maximum annual salary of about $12,000 per year. Industry salary levels are at least fifty percent higher for people of comparable experience and skill.

In addition private industry offers the opportunity for profit-sharing, capital gains deals, etc., to its top people. The civil servant has little prestige; in fact, he is quite generally looked down upon. The Air Force has no organized program for civilian career development—no in-residence graduate training at government expense (although a "while-on-the-job" program allows for several hours per week of university study at government expense). Add all these up along with the myriad of other justifiable employee gripes against the government, and you have to face the fact that the civil service just cannot retain top level civilian technicians and executives. The problem is particularly critical in the military departments.

There are a number of "quick-fixes" that could be made, but none of them really cures the illness. They merely treat the symptoms (or inconsistences). In R&D lingo there is a limit to what can be done by "product improvement"—eventually you have to design a new product. The same holds true for trying to doctor-up an organization.

To guide the design of a new organization, let's consider a few basic precepts which should serve as its foundation.

• *The military should remain responsible for the direction and control of the military R&D program.* The decision as to what should constitute the military R&D program and what should be included in it, is a military decision. Admittedly, these decisions must be made with a great deal of technical wisdom. Within the Air Force there are many officers of high engineering and scientific attainment. True, there is a shortage of qualified technical officers but probably no more than the shortage of top-level civilian engineers and scientists. The Air Force recognizes this problem and offers graduate training in engineering, the sciences and R&D administration and management. With ARDC alone, there are at the present time some 600 officers with masters degrees and over 160 with doctorates in these fields.

• *The R&D effort should be prosecuted under contract by civilian organizations—whole areas of the Air Force program should be turned over to contractors or contractor groups.* This is essentially the way the Atomic Energy Commision runs its business—weapon development is performed by the Sandia Corporation, a Western Electric division; weapon research is carried out at Los Alamos and Livermore by the University of California. Other functions are performed at Argonne Laboratories by the University of Chicago, at Brookhaven by Associated Universities (a group of nine eastern universities), at Oak Ridge by Union Carbide and Carbon Corporation, at Hanford by General Electric, etc. ARDC already operates or supports several of its major test facilities through civilian contractors. The Hoover Commission Subcommittee on Research Activities in the Department of Defense and Defense Related Agencies "commends the adoption by the Air Force of contract operation for the Arnold Test Center and the Missile Test Center." Unfortunately, Congress and the Bureau of the Budget do not always find contract operation of military facilities to be so commendable.

• *Civilian participation should be by contract or through advisory and consultative services.* First of all, there is the hard fact that the Air Force, operating within the Civil Service structure, cannot attract really top-notch civilian engineers, scientists or managers. There have been strong arguments recently for the type of OSRD agency which functioned so well during the urgent years of World War II. Supposedly such an organization is more receptive to new weapons and techniques than one controlled by the military. There are too many examples to the contrary.

For example, the turbojet was developed by Frank Whittle, an RAF officer. Whittle unsuccessfully sought support from the civilian-dominated British Ministry of Supply over a period of about six years before he obtained private venture capital to proceed further with its development.

In 1945 Gen. H. H. Arnold issued a report indicating "that a transoceanic rocket can be developed." In testimony, before the Special Senate Committee on Atomic Energy in December 1945, Dr. Vannevar Bush, wartime Director of OSRD, stated: ". . . We have plenty enough to think about that is very definite and very realistic—enough so that we don't need to step out into some of these border lines which seem to be, to me, more or less fantastic. Let me say this: There has been a great deal said about a 3,000-mile high-angle rocket. In my opinion, such a thing is impossible today and will be impossible for many years. The people who have been writing these things that annoy me . . . have been talking about a 3,000-mile high-angle rocket shot from one continent to another, carrying an atomic bomb and so directed as to be a precise weapon which would land exactly on a certain target, such as a city. I say, technically, I don't think anybody in the world knows how to do such a thing, and I feel confident it will not be done for a very long period of time to come. . . . I think we can leave that out of our thinking. I wish the American people would leave that out of their thinking." The fact that today the Russians are probably far along in the development of such an intercontinental weapon can hardly be left out of our thinking.

Or take the more recent case of the hydrogen bomb. A group of the nation's top physicists acting as the General Advisory Committee to the AEC said in 1949 that such a device could not be built. In their recent book, *The Hydrogen Bomb,* Shepley and Blair indicate that the Air Force was so concerned with the lethargy of the nation's top physicists in pursuing the bomb development that Secretary Finletter was considering the establishment of an Air Force Laboratory in order to vigorously pursue its development. Capitulation by the AEC through the establishment of the Livermore Laboratory under Drs. Herbert York and Edward Teller made such an action unnecessary.

So you can see that there may be some fallacy to the argument that military R&D should be controlled by our civilian scientists. The scientist by his very nature may not be fitted to control the destiny of military R&D. He is trained as an intellectual who must question, investigate and weigh to such an extreme that he can only be classified as a conservative. Control of the content and direction of military R&D demands both imagination and daring—an attitude of "We've got to have it; therefore, it must be developed."

The continuity of effort of top scientific brains must also be considered. As much as our scientists feel they can contribute to the control of the military R&D program, past performance demonstrates that after two or

(Continued on page 85)

CURTISS-WRIGHT
TURBOPROP ENGINES and TURBOLECTRIC PROPELLERS power the BOEING XB-47D

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MOST POWERFUL TURBOPROP ENGINE EVER TO FLY

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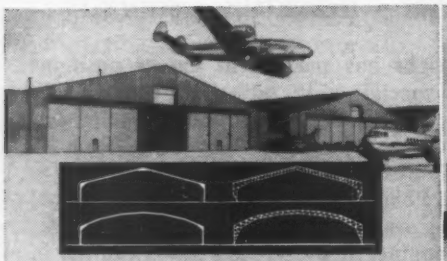

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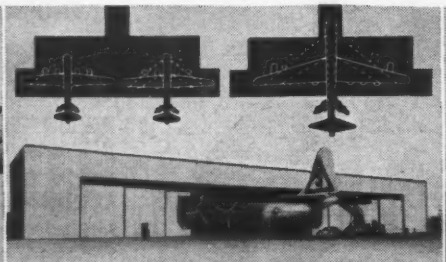

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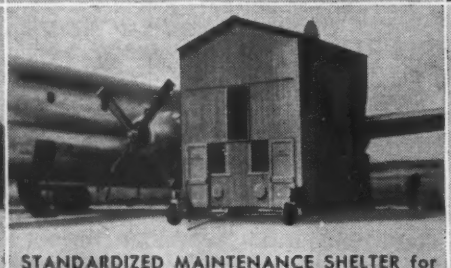

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SALUTES THE

CIVIL AIR PATROL ON ITS 14TH ANNIVERSARY

three years of applied work at the management level they feel the need to return to the open, uncontrolled environment of their own laboratories to pursue research of their own interest and choosing. In other words, civilian control could be even more unstable than military control.

• *There should be a continuous career for qualified Air Force Officers in R&D.* This may sound revolutionary for an officer is supposed to be ready to serve wherever he may be assigned. But after all, doesn't the military physician spend his career in medicine, the judge advocate in law? General LeMay has been SAC's commander since 1949. SAC's officers stay with SAC. They might be assigned almost anywhere in the free world but they continue to serve with our B-36s, B-47s, and soon our B-52s as specialists in the art of modern warfare. R&D career officers should get experience through short duty assignments in the field, not as potential field commanders, but to gain experience in field operations and to see, first hand, the problems demanding R&D investigations.

The career officer should have duty tours in contractor plants, in universities, with technical intelligence agencies, as technical air attaches. All would contribute to his capability to guide the course of R&D action—based on first-hand knowledge of military need, state of the art in science and industry, possible scientific "breakthroughs," and the capabilities of the enemy.

To define the method by which the AF should carry out its R&D responsibility and to remove the inconsistencies in the present ARDC setup we need to do more than repeat the principles discussed above.

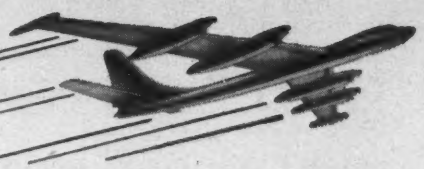
• The military should be responsible for the direction and control of the military R&D program.

• The R&D effort should be prosecuted under contract by civilian organizations—whole areas of the AF program should be turned over to contractors or contractor groups.

• Civilian participation should be by contract or through advisory and consultative services.

• There should be a continuous career for qualified Air Force officers in R&D.

The USAF R&D organization should be operated according to these principles. The stability, consistency, and economy which would result will speed the development of superior Air Force weapons to insure the future security of the nation.—END



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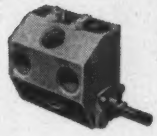

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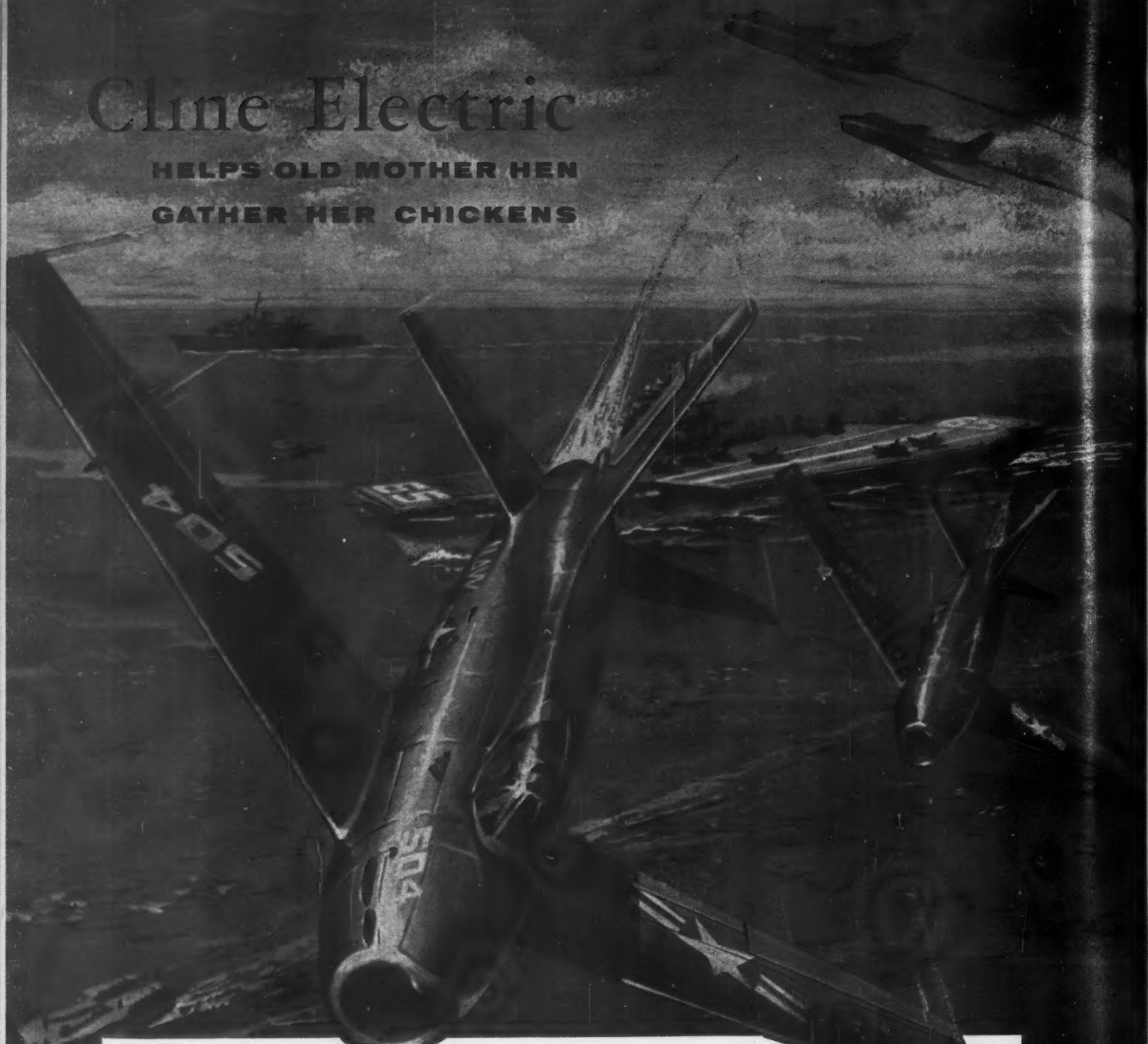

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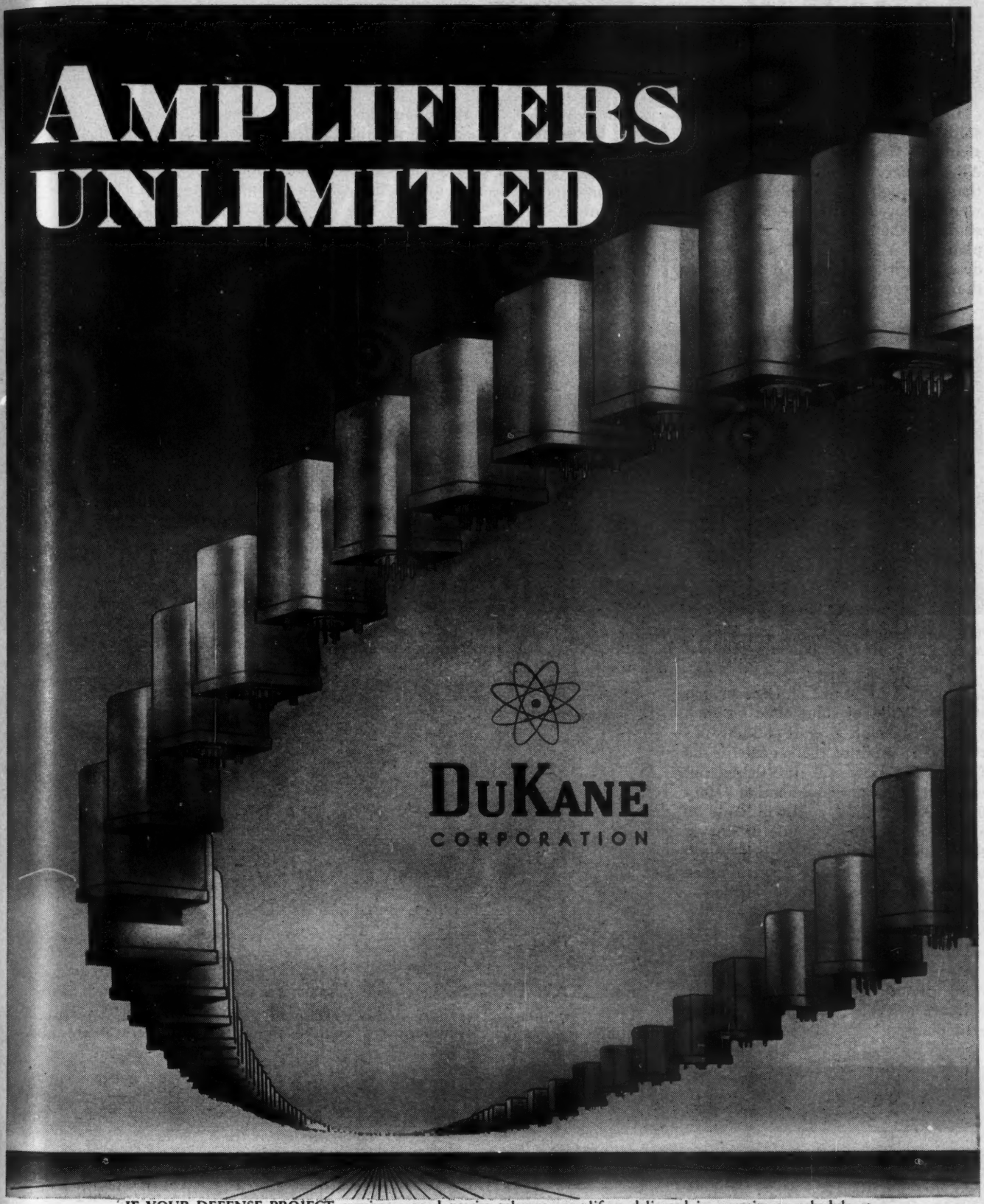

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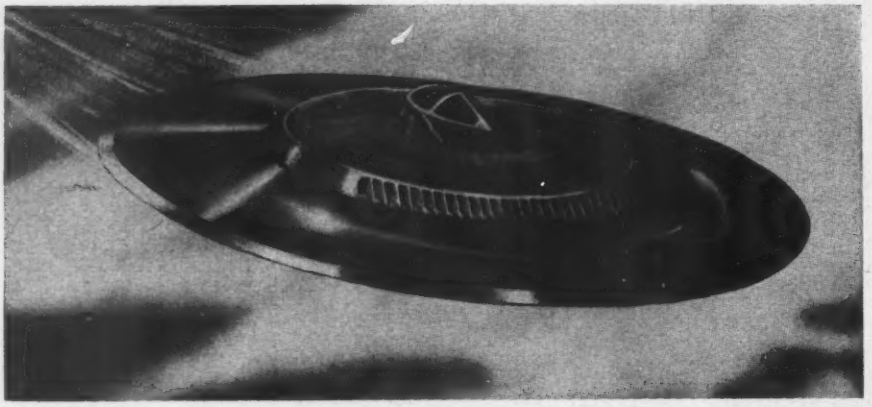
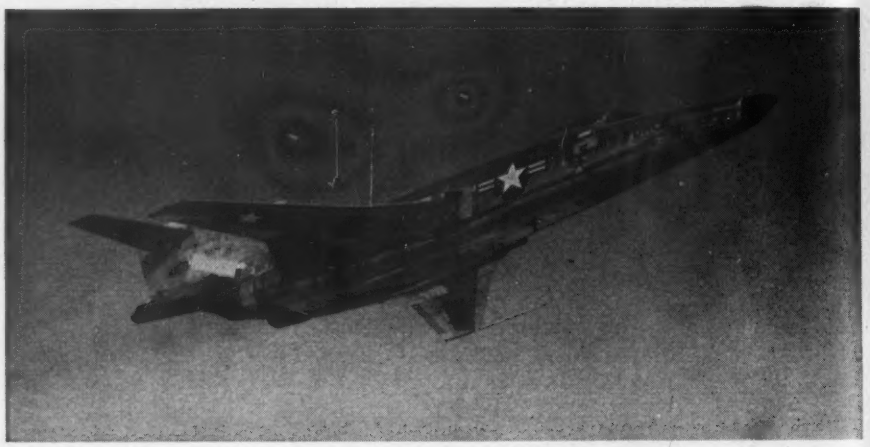
Tech Talk

In releasing the Air Force's 315-page study of reports of "flying saucer" sightings from the last eight years, AF Secretary Donald A. Quarles said that although no real flying saucers were discovered in some 5,000 cases studied, the Air Force does have plans for a disc-shaped aircraft. He described it as "somewhat similar" to the public concept of a flying saucer (see cut). Avro, Ltd., of Canada, has been working for some time on such a vertical take-off aircraft and now has the nod to produce the saucer for the USAF. The powerful disc-shaped jet will cost in the neighborhood of $100,000,000 to produce, and will likely be a one-man fighter, capable of hitting the 1,500-mph mark. The AF Secretary also pointed out that several other vertical take-off aircraft are in the experimental stage. Like these, the saucer is being designed to take advantage of short runways, or no runway at all, but, says the Air Force, once in the air, the saucer will act just like any other jet-powered plane.



The AF, in a new report, discounts "flying saucer" sightings but admits that Avro, Ltd., of Canada, will produce something like this artist's conception.

The newest of the McDonnell Aircraft Corporation's Voodoo series, the RF-101A (see cut) will enable the Air Force to carry out supersonic photo-reconnaissance missions in more or less routine fashion. The reconversion is a modification of the F-101A, already one of the USAF's longest range supersonic fighters and, like the F-101A, the photo plane is equipped for in-flight refueling. After basic instructions are fed into the camera system, the photo procedure becomes completely automatic. Though lighter in weight than the F-101A, the RF-101A has the same performance characteristics. Two Pratt and Whitney J-57 turbojets give it approximately 20,000 pounds of thrust. McDonnell is building the F-101A for duty with SAC while F-101B is being designed for duty in ADC. McDonnell's contract with the Air Force for these planes totals more than $330,000,000.



RF-101A, photo-recon version of the McDonnell Voodoo, will make supersonic photo-reconnaissance pretty much a routine thing for AF operational units.

Cessna Aircraft Company has come up with the Cessna 172 with a patented "Land-O-Matic" gear. The new gear enables pilots to "drive" the aircraft out to the runway. The all-metal 172 can hit a top speed of over 135 mph, and will cruise for four and a half hours at more than 120 mph.

Chance Vought Aircraft, Inc., of Dallas, has developed a "buddy" version of its F7U Cutlass for use as a refueling tanker. It's been designed to transfer several hundred gallons of fuel in flight to another Cutlass. The minor modifications required to make the Cutlass a tanker plane enable carrier commanders to have a strong, long-range striking force without reducing the number of fighters aboard (see cut).

Chance Vought F7U-3s demonstrate "buddy" refueling system, which increases the striking range of carrier forces. Tanker can transfer 300 gallons of fuel.

From Convair's Fort Worth production line have come the first of thirty-eight specially modified Douglas C-54D Skymasters, redesignated the SC-54. They're being assigned to the MATS Air Rescue Service, which

(Continued on page 91)

L-26B

Now in the Service of the

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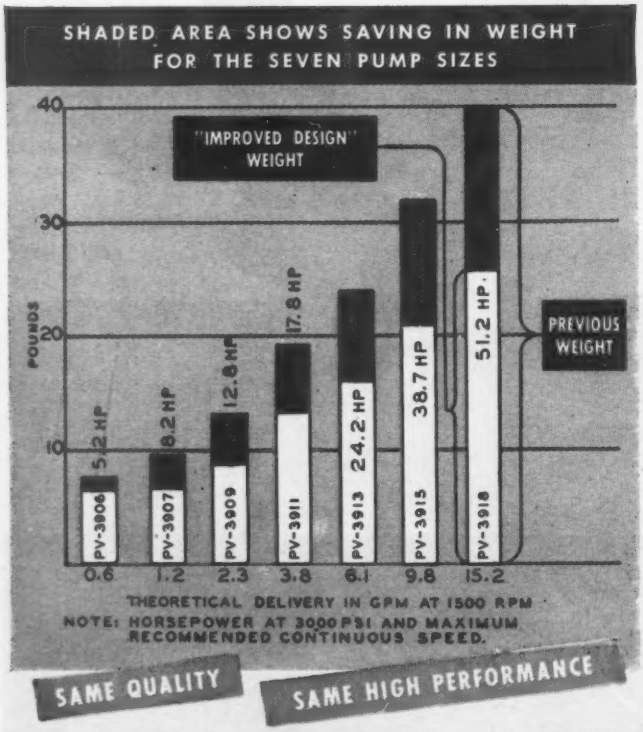

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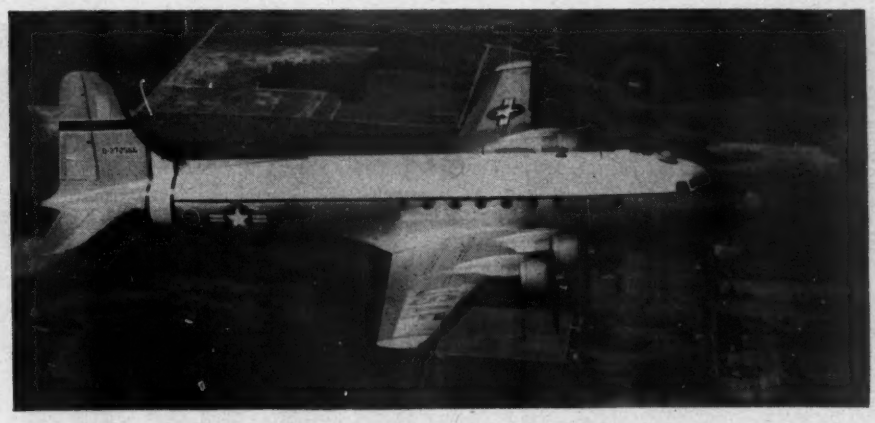
ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

is expected to have the last one by next March. The SC-54s are to **replace the boat-carrying veteran SB-17s and SB-29s,** and supplement the Grumman SA-16, which is to remain the primary rescue aircraft. The SC-54 **carries four MA-1 kits, called "ARKs,"** each containing two twenty-man life rafts. The plane **can remain aloft more than eighteen hours without refueling.** Among its new features is a **B-36-type scanner blister situated** amidships (see cut). It has been **equipped with a special seat** to make the scanner's tedious job more comfortable.



Convair modification of Douglas C-54, called SC-54 for Air Rescue use, has scanner blisters located amidships. The SC-54 replaces aging SB-17s and SB-29s.

British European Airways plans to add a fleet of **Vickers 900 Vanguard airliners by 1960.** The 900 will be a ninety-three passenger plane, **powered by four Rolls-Royce R.B. 109 propeller-turbine engines** (see cut). The airliner contains three separate passenger cabins in the upper part with four toilets, two galleys, a bar, and two separate passenger cabin doors. **Cruising speed will be 425 mph.**

WAF A/3C Martha Holton tries out one of the scanner blisters in the SC-54. The plane is equipped with eight droppable twenty-man life rafts.

Scanner seats are more comfortable in the SC-54, as M/Sgt. Ira M. Chichester can testify. The plane can stay up 18 hours without refueling.

ARDC's new **electronic equipment shelter,** designed by New York University's research engineers under contract to the Air Research and Development Command, is a **transportable, air-conditioned housing for delicate electronic equipment.** It consists of one aluminum shell within another, **weighing one and a half tons.** Resembling a small, truck-like van, it can be **transported fully assembled in a C-119 Flying Boxcar.** Four men handle the assembly or breakdown in less than four hours. The unit will protect the equipment inside it in temperatures as low as minus sixty-five degrees and to a high of 140 degrees fahrenheit. It will also **withstand winds up to 100 mph** and give a protection against movement and buffeting during air or ground transportation.

ARDC has also announced the development of an **automatic, electronic remote-control system** to operate aerial cameras in high-speed photo recon airplanes. Known as the **Universal Camera Control System (UCCS), it automatically controls settings and operation** while the plane is in flight. It also **adjusts to light, altitude, and ground speed variations,** operating in flight without human attention. **The Aerial Reconnaissance Laboratory at WADC helped develop the system,** laying out the performance requirements and general electronic design. Electronic and photographic equipment manufacturers **Bill Jack Scientific Instrument Co., Allen B. DuMont, Chicago Aerial Industries, and the Fairchild Camera and Instrument Corp.,** are also credited with aiding in its production. **Robert Roalef,** a Wright-Patterson Air Development Center engineer, received the AF's **Exceptional Civilian Service Award** for his part in the original concept and early work of the UCCS.—END

BEA has placed an order for a fleet of Vickers 900 Vanguard airliners. Four Rolls-Royce R.B. 109 propeller-turbine engines power the big new airliners.

An AIR FORCE Magazine Fiction Feature

MOSCOW MISSION

What goes through the mind of the pilot of an atomic-powered bomber of tomorrow . . .

THE bright November sun streamed through the blue-tinted glass of the cockpit as Mark banked his sleek bomber into a right turn and steered north. The southern tip of Lake Michigan was 60,000 feet below. Off to the left was the rubble of what had been a beautiful city. The Wrigley Building, Michigan Boulevard, and the sprawling suburbs had been vaporized by a hydrogen bomb just a few short weeks before. . . . The top brass and government big shots had said that this next war was going to be horrible. . . . Well, they sure had been right. "Both sides were going to get hurt bad," the brass had said. "Especially the side that gets hit first." Well, thank God we are on the winning side now—even if it did cost us a few cities.

Mark checked his instruments. He had been worried since take-off about his cockpit pressure. It didn't seem to hold nice and steady like it should.

He busied himself for the climb.

By Lt. Col. James H. Foster

Sweepback-OK, gyros-OK, electric generators-OK, canopy-OK, fluid temperatures-OK, everything seems OK, all right . . . ready for climb.

"Lieutenant, ready for power increase."

As the needle of the gamma flowmeter started to pick up, Mark pulled the ship back on its tail. It never ceased to amaze him how fast these darned nuclear motors could pick up speed. The first few that he had test hopped over the Dry Lake had been sluggish and slow to take a power increase. Now, you pushed the "GO" button and, whoosh, things really started to percolate.

Mark's mind skipped back over the years. . . . Who would have thought that nuclear power for aircraft would have come this far in such a short time? Nuclear power had been strictly for ships until that atomic sharpie had figured out radiation deflection to take the place of lead shielding. . . . And all of the other developments that had come along. . . . Why, we'd fiddled around until 1958 getting past the barriers of polar navigation. It must have taken real guts to plow out across the polar region in an airplane with nothing more than a few rickety gyros and a magnetic-type compass. Give good old Mark a gyro that works and a good inertial system and he'd let those pioneers have their glory.

* * *

Altimeter-75,000, gamma flow-OK, adjust sweepback now, gamma flow-increase, cabin pressure-holding—a real fine type aircraft. Mark snuggled back against his back rest, at peace with the world. At peace, as much as a good solid bomber pilot could get, considering. . . . Wonder what the devil had made that cabin pressure surge back along the way? No time to start worrying about that now. Just hang onto my sinuses and hope for the best, I guess.

Altimeter-80,000, gamma flow-still OK, adjust sweepback, cabin pressure—well, it reads OK, and my ears are still on. Never had a blow-out at 80,000 feet and don't guess I'll ask for it unless I should really get in a jam sometime. Guess I'd just pop my cockpit capsule and hope for the best. . . . Wonder how the back-seat driver is making out?

Back-seat driver, what a laugh! Where in the wide blue yonder would I be if it weren't for that kid in the back seat? Electronics, nuclear monitoring, radar navigation—heck, she takes care of everything. And to think that until a few years ago we used men for that work. . . . Sometimes I wish they had assigned me an ugly fat one. Probably be better able to keep my mind on my work.

* * *

Pay attention to business, son. Got to keep this monster heading in the

(Continued on following page)

right direction. Altitude-95,000, time to adjust the sweepback again, gamma flow-still OK, generators still putting out. Hope the cabin pressure is still holding. . . . I wonder about that girl. Betty. . . . About due for her captain's bars. . . . Does a dandy job. No fault to find with the way she handles the engines or the navigation or anything. Just wish she weren't so darned pretty. . . . Maybe it's the flying suit. . . . These new form-fitting anti-G suits really take advantage of her curves. Wouldn't mind being forced down on an ice floe for a few weeks with her. . . .

• • •

Wake up Romeo! You'll day-dream yourself into a situation that you can't get out of one of these days. . . . Altimeter-103,000 feet. Time to start watching the vortex generators, make final adjustment of the sweepback, start the cutback on the nuclear power plant, cabin pressure—still holding. If it gives out now we're in a pickle anyway. Everything seems to be working just like the man said it would.

• • •

Get ready to level off at 107,000. Mustn't exceed my Mach number when I level off. Not sure just how much of a safety factor they've put into this critter. Watch it. Reduce power—level her off—shut down auxiliary cooling on the power plant. Watch that airspeed climb. What an airplane!

Never can tell how you get into scrapes like this. We sat bluffing and hoping for years. Bluffing because we were afraid to think that THEY were up with us in guided missiles and nuclear power plants. Wonder what would have happened if they had really buckled down and put in a radar net with interceptors enough to have stopped us.

Those first missions, when we went after their long-range attacking force. We were betting on a long chance. Threw everything we had into it. Armpits and appetites. Everything. Wonder how things would have come out if we'd fouled out on that big initial raid? If you haven't got the guts to hit first—you had better have a top-notch defense. There were some real shaky times during those first few days though. Yours truly will be happy to sit out the next one on the side lines. Let some of those dandies from the Training Command make the first run at the radar-interceptor line the next time. Not me. Does seem a shame to watch a civilization crumble and fall, though.

Heads up here! Got to switch my gyros over before we get too far into the polar magnetic region. I'll foul myself into a real problem if I'm not careful. Between the inertial system and our new gyros this is like shooting fish. Wonder who figured out using the earth's lines of magnetic flux to keep a free gyro from precessing?

• • •

A red light the size of a fifty-cent piece on the instrument panel began flashing its ominous warning at Mark. Something wrong with the nuclear engine! The gamma flowmeter's sharp-nosed pointer was indicating a dangerously hot condition, and the needle was still climbing.

"Hello, Lieutenant, hello. What's the matter back there."

The voice in the headset was cool and calm. "Don't get excited, Skipper, I've got it. Nothing to rip your knickers over. I just let it get away from me for a second. I don't think we hurt anything. It's coming down now."

Mark noted the decrease on the indicator and settled back in his seat. Guess she's more worried about those missiles down there than I thought. And according to my trusty time piece it's time we both started worrying, because if there are any missiles left down there we should start hearing from them within the next two minutes.

Penetrating the radar net is a ticklish business at best—an operation which demands the closest teamwork between the pilot and his observer. Mark, in the front seat, had only a pair of small monitoring scopes while the main radar equipment was in the rear compartment. It was Betty's job to scan the icy horizon with her "pick-up" radar and to plot the exact position of the search radars on the ground. They're easy enough to miss even if you happen to know exactly where they are.

• • •

There had been a lot of talk among the pilots a few weeks ago on just how to make these penetrations. Some of the boys figured it was best to get up a full head of steam and run the gantlet on speed alone. Several broken hulks strewn over the ice-cap proved that this wasn't such a good idea. Only yesterday headquarters had published a new policy which seemed a lot more sensible, namely, go slow and be careful.

• • •

In keeping with this policy, Mark slowed his plane down to the recommended approach speed. As the craft started to decelerate his headset began to crackle with information. "One dead ahead at seventy-five miles, one eight degrees left at ninety miles, one twelve degrees right at sixty miles. They all look like major missile sites." The headset continued, "Slow it down, Skipper, these sites are coming up pretty fast. Shift your heading four degrees right and hold steady." Two short breaths later, "Stand by with forward chaff and electronics." Mark switched off his auto-pilot and took the controls manually. He maneuvered the right turn to his new heading as the green light popped on showing him that the electronic countermeasures gear was ready.

• • •

Information began coming from the back seat again. "Another site dead ahead on this heading. Beginning to look clear off to the left again. . . . Stand by for new heading and a left turn." Suddenly, "Watch out to the left, I think this is the way we came through yesterday and there may be one lying down there with his set turned off waiting for us," Betty warned.

Mark said to his microphone, "No one's fired on us yet but I've got all the confusion warmed up, just in case. Keep your eyes open now."

• • •

Betty yelled, "I knew it! Hard turn

(Continued on page 97)

About the Author

The author, Lt. Col. James H. Foster, 34, is a USAF career officer, now assigned as Deputy Chief, Procurement and Industry Planning at FEAF headquarters in Tokyo. Born and raised in the small mining town of Mullan, Idaho, he enlisted in the AAF as a flying cadet in 1941 after three years at Eastern Washington College, Cheney, Wash. In 1942 he was assigned to a bomb group commanded by then Lt. Col. Curtis E. LeMay and in October '43 arrived in England for B-17 missions over Germany. In 1944 his plane was downed on a raid over Germany. Foster and his crew were POWs for 18 months. After the war Colonel Foster attended the AF Institute of Technology at Wright-Patterson AFB and was assigned to AF purchasing. He supervised the buying of guided missiles for several years, and in 1954 attended the Air Command & Staff School. He's married and the father of two children.

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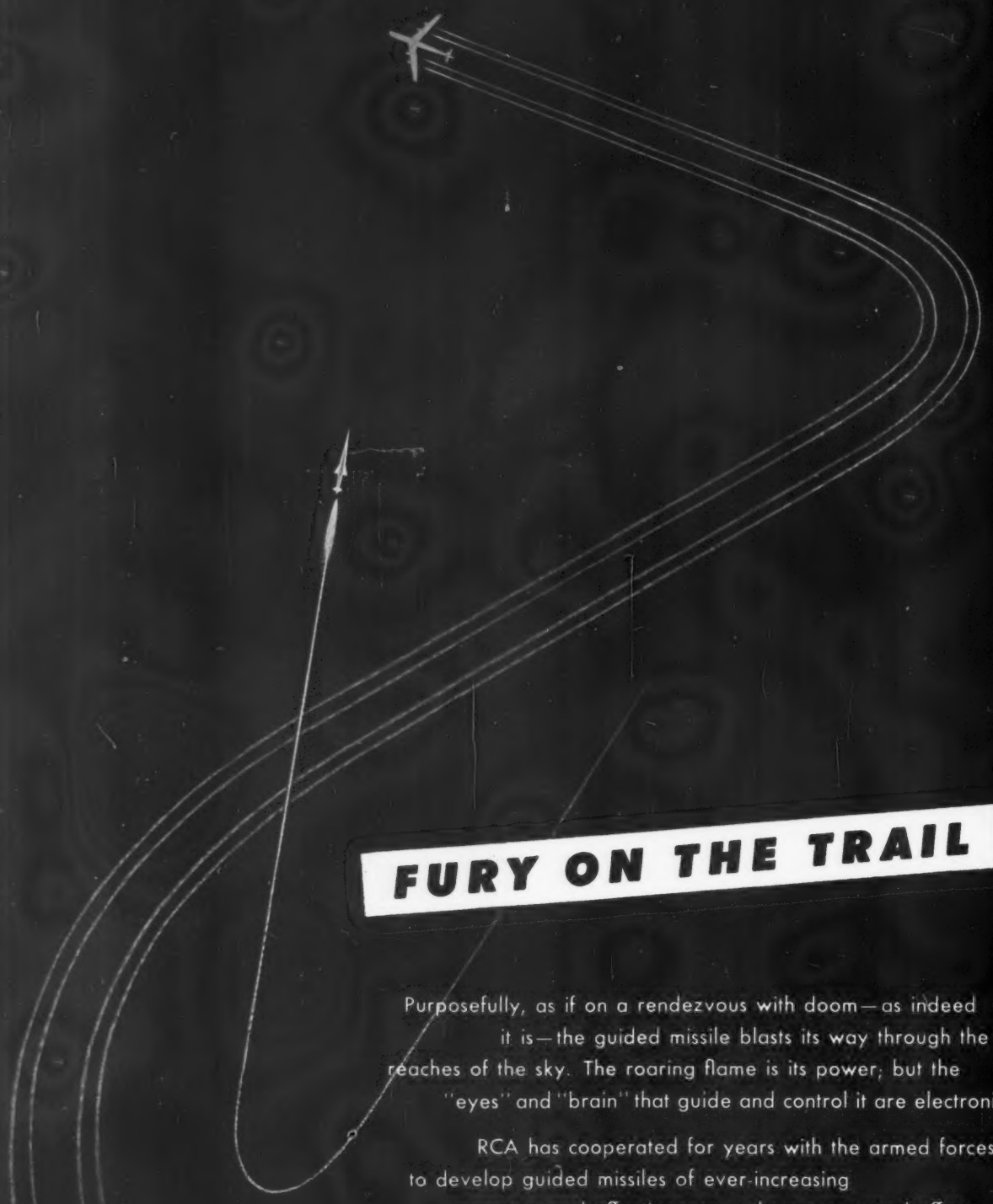

FURY ON THE TRAIL

Purposefully, as if on a rendezvous with doom—as indeed it is—the guided missile blasts its way through the long reaches of the sky. The roaring flame is its power; but the "eyes" and "brain" that guide and control it are electronics.

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right! Skipper, he launched one. . . . Here it comes. Fire forward chaff and roll to the left. . . . Steady now, don't get too far away from the chaff—don't want that thing to jump the chaff and home on us."

Mark swore. "Here comes another one. I just saw my scope light up."

"I have the second on my scope," said Betty. "Hold this heading for four seconds and then roll right. . . . Fire your chaff before you turn."

"Whoops, the first one went past us—here comes the second. . . . Fire chaff and then roll — steady now. NOW!" Mark began to sweat under his flying suit. Rivulets of perspiration began to roll down his chest.

"Hold your heading, Skipper, I think it's going to work. . . . Steady—yup, there goes number two right into our chaff cloud. Now, pour on the coal, pilot. I think they're all behind you now. . . . Here comes your nuclear power back in, ready for power increase."

Mark jammed the throttle wide open and braced himself for the emergency acceleration. The plane jumped forward, pinning Mark back against the cushions of his seat. He flipped the switch on the auto pilot and began to run a check on his instruments. All was well and he settled back to watch the air speed climb. The little needle turned as the craft sped forward. . . . 1,600—1,700—1,800, and on around the dial. His headset buzzed again, this time the voice was soft and more restrained.

"Skipper, I don't like to be this way but this heading we're on is a dandy for getting away from guided missiles but won't do much for a crew trying to get to Russia. I'd suggest you make a twenty-degree correction to the right, if you don't think I'm too presumptuous."

Mark smiled to himself. He wasn't much of a stickler for crew discipline in the first place and a young lady deserved to let off a little steam after going through a hair-raiser like that guided missile line-up. He touched the turn handle on the auto pilot. The craft banked obediently to the right and held until he was back on heading again. Mark glanced up into his rear-view mirror. Betty was busy with her radar scopes but looked up quickly when she felt him watch her.

"Couple of those were pretty close back there, weren't they, Lieutenant?"

She smiled, "Too close to suit me. . . . I'll be glad when those guys from Tactical Air get out there and take care of those pests."

• • •

Mark nodded and relaxed for the rest of the run. Not too much to worry about from here on in if I keep to my flight path and don't run into any trigger-happy gun crews. He made his habitual check of the instrument panel. He paused at the cabin pressure indicator. . . . Seems to have settled down. Wonder what the weather is over the Kremlin. Good weather had been practically guaranteed by the weatherman at the briefing this morning.

Mark checked his watch and glanced up into the mirror to see if his backseat driver was busy. "What do you say, Lieutenant? Is our time over Moscow still good?" The helmet in the back seat popped up.

"We're still making about 3,200 knots but we lost about two minutes playing tag with those missile emplacements back there."

Mark nodded and settled himself to the routine of watching the instruments and the general type of quasi-navigation he usually did on long trips. He reached over and turned on the Ranging Radio on the side panel. As he scanned the frequency band he could hear nothing but the frequency jammers playing tic-tac-toe on his eardrums. It's a good thing I'm not having to depend on any electronic ground navigational aids, he thought. The countermeasures boys have really got things blinded out today. . . . Funny thing, this mass extermination business we're wrapped up in, he thought. Billions of dollars go into a city, and BLOOEY—one good nuclear burst and it's all over for that place. His mind ranged back over the months preceding the war's actual outbreak. Come to think of it war hadn't actually been declared by either side yet. If they didn't hurry it up everything would be all over.

Mark checked his watch. Two minutes 'til we start our letdown. It always seemed funny to him when he thought about having to lose altitude in order to drop his bomb load. Wasn't too many years back that anyone tried to bomb from as high as they could get. Now they had to let down to around 60,000 feet and slow up their airplane in order to get any kind of accuracy at all.

• • •

As the seconds ticked off Mark readied the airplane for the long glide down to thicker air. He ran through his check list, then called into the mi-

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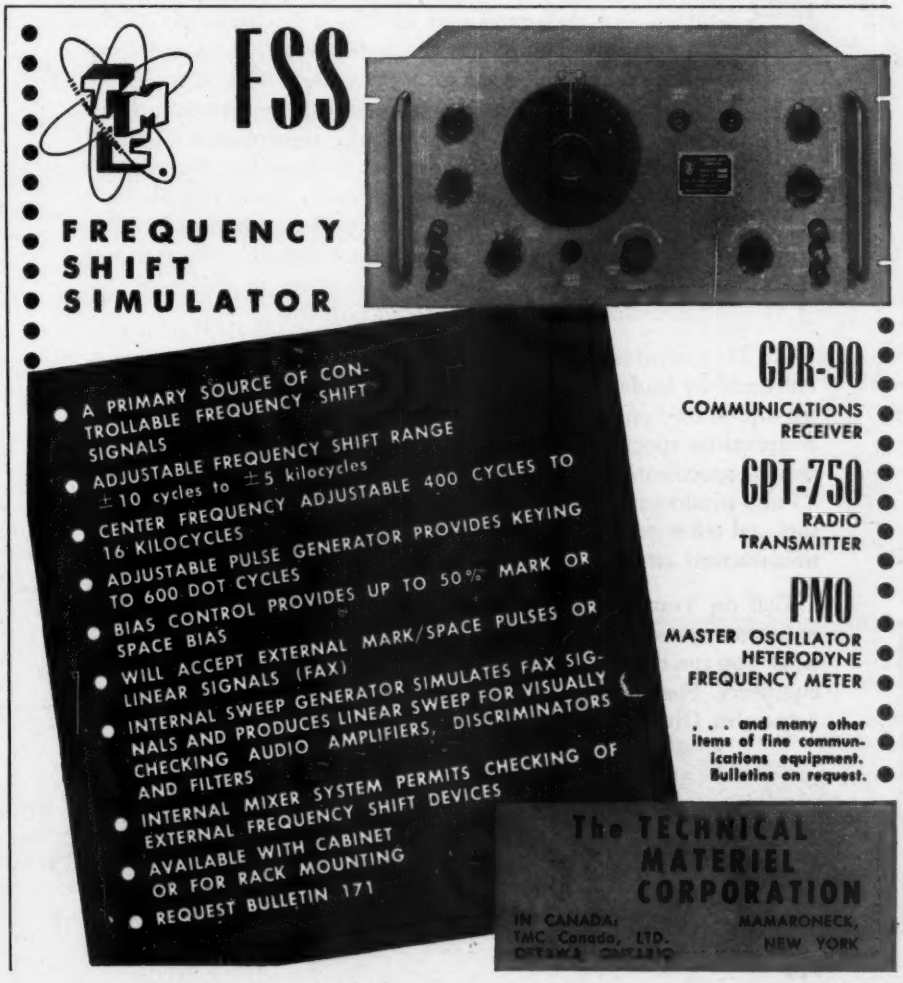
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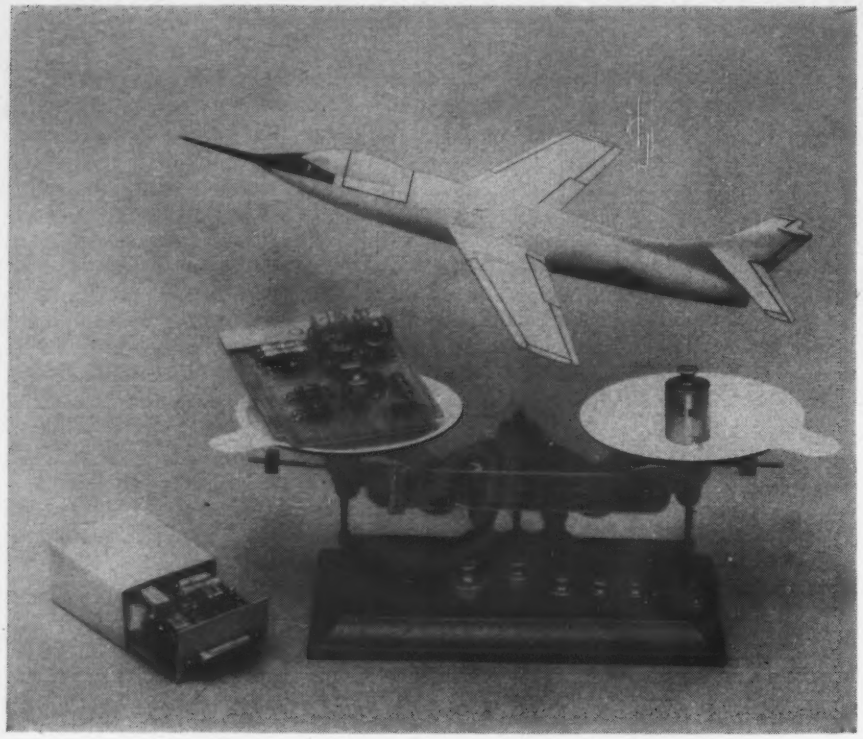

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crophone. "Stand by for power reduction, Lieutenant."

As the gamma flowmeter started to decrease from its cruise power setting Mark pulled back on the throttle and rolled the plane forward on its nose. The air speed indicator started to increase and then held steady. Down, down, down.

"Hey, Lieutenant, have you got us pinpointed?" Mark yelled.

"You're right on course," came back the reply, "and don't yell—you're breaking my eardrums." Down, down, down. . . . The altimeter went round and round.

Finally, "Stand by for power increase, Lieutenant. We're approaching 60,000 feet. . . . Are your final adjustments made?"

"We're all set."

"Are you sure we're right on course? I can't see the city yet."

"You'll see it in a minute, we're exactly on course," said Betty.

"How's the weather over Moscow? Can you make it out on your scope yet, Lieutenant?"

There was a pause and then his headset began to hum. "I'm beginning to get a pretty good picture now of the city and it's clear as a bell."

Mark slid his seat forward on the rails. He took one final look into the rear-view mirror. "If you're all set, Lieutenant, then hold onto your hat —I think I'll take it straight in this time."

Motors began whirring from the rear cockpit. Tiny final adjustments were made to expensive precision equipment. The moment both of them had been waiting for was all but here. Mark could feel the tension mounting.

"Are you ready?" yelled Mark.

"We are ready," came back the reply with equal violence.

Mark pulled the throttle back all the way, threw out his dive brakes and plummeted earthward. With a sickening sensation the ground jumped up to meet him. He reduced his speed as he approached the big airport on the outskirts of Moscow proper and set the plane smoothly down on the long concrete runway. He taxied quickly up to the Operations building and leaped to the ground while Betty shut down the nuclear engine.

He trotted into the building, strode briskly up to the desk, saluted smartly and said:

"Sir, Maj. Mark Stowkowski, Soviet Air Force, reporting. My mission is successfully accomplished—Pittsburgh, Pennsylvania, is completely demolished."—END

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Recently, North American awarded TEMCO three important jobs on the Air Force F-100 Super Sabre.

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Mrs. Brown refused to sink

"Keep rowing or I'll toss you all overboard!"

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The READY ROOM

RESERVE AND AIR GUARD NEWS

Alfred C. Schwab, Jr., of St. Paul, Minn. (see cut on page 102), a group commander in Minnesota's Air National Guard, has been reappointed chairman of the **Air Force Association's** thirteen-member **Air National Guard Council.**

In selecting the thirty-six-year-old fighter pilot to head the Association's ANG council for the second straight year, **Gill Robb Wilson,** AFA President, said he was confident Schwab "will continue to give this Council the **kind of leadership** that has helped bring the Air National Guard into focus as a **vital element** of our country's airpower potential."

Schwab is a native of St. Paul and earned his wings in 1942. He served in the Mediterranean theater in World War II, rising to command of the 154th Fighter Squadron. He joined the Minnesota Air Guard's 109th Fighter Squadron in 1946 as operations officer, later became operations of the 133d Group, and subsequently held the same position in the 133d Wing.

When the wing was called to active duty for the Korea war, Schwab was assigned to 31st Air Defense Division as director of combat operations. He became commander of the 133d Group when the Minnesota Air Guard outfit was released from active duty on December 1, 1952.

The Air Guard Council chairman, a full colonel in the Air Guard since December 1, 1953, is an advertising and sale promotion manager for a pharmaceutical food company in civilian life.

Also reappointed to the Council were:

Joseph J. Foss, Medal of Honor winner and governor of South Dakota; **Bernard M. Davey,** commander of the Air Guard wing in Georgia; **William W. Spruance,** ANG chief of staff in Delaware; **Dale J. Hendry** of Nampa, Idaho; and **George D. McMorries** of Dallas, Tex.

New appointees are:

Donald Straight, Air Guard wing commander in New Jersey; **Philip Tukey,** Air Guard wing commander in Maine; **Robert Campbell,** of the 146th ANG Wing at Van Nuys, Calif.; **Milton Barth,** a squadron commander in New Orleans; **Ed Mack Miller,** free-lance writer and pilot in Colorado's 140th Wing at Denver; **John Fagrelius** of Sioux Falls, S. D., who was voted the outstanding ANG airman in the United States last year; and **Allan R. Packer,** a pilot in Iowa's wing at Des Moines who flew in AFA's Earl T. Ricks Memorial Trophy event last summer.

In addition, AFA's President Wilson, himself a veteran Guardsman, announced that **Robert P. Knight** of White Bear Lake, Minn., a member of that state's 133d Wing, will act as secretary for the council.

At the same time Mr. Wilson also announced the appointment of **Alex B. Andrews** of Raleigh, N. C., to the Association's Air Reserve Council. Andrews flew with the Eighth Air Force during World War II. After the war he directed the technical advisory department for Flying Training Command. At the present time he commands the 9179th Air Reserve Group in North Carolina. In civil life Andrews, an active pilot, heads his own sales representation firm.

• • •

The **Air Reserve Technician plan,** similar to that already in effect for the Air National Guard, has been **accepted in principle** by the Civil Service Commission and now is awaiting Department of Defense approval. This was disclosed last month by **Maj. Gen. William E. Hall,** Assistant Chief of Staff for Reserve Forces, at the fall meeting of the Section V Committee on Air Guard and Air Reserve policy.

Under the plan, **full-time employees** of the Air Force Reserve would be **members of the units employing them.** The program, General Hall disclosed, would **release some 7,000 Air Force officers and airmen** who are now tied down in permanent party assignments for service elsewhere in the Air Force. It will provide, he said, for **fuller manning** of Reserve units because it will make a unit a controlled operation and offers, in effect, dual careers to incumbents.

General Hall estimated that the plan will save about 2,000 personnel spaces and will save about **$2.3 million** over the present program in the first year alone.

The committee also heard that the plan to authorize an additional **thirty-six training periods** for rated Guard and Reserve people had run into a snag. This plan, endorsed by the

(Continued on following page)

Capt. Robert C. Wendling, a member of Indiana's Air Guard, hops into the cockpit of his interceptor to take part in ADC's nation-wide alert, designed to test the effectiveness of twenty-seven ANG wings stretching over the US.

With earphones and microphones in use, Maj. Lloyd Smith and his 122d Communications Sqdn. played a vital part in Indiana's ANG participation in the ADC-sponsored alert, "Stopwatch." Nation-wide, seventy-two units were active.

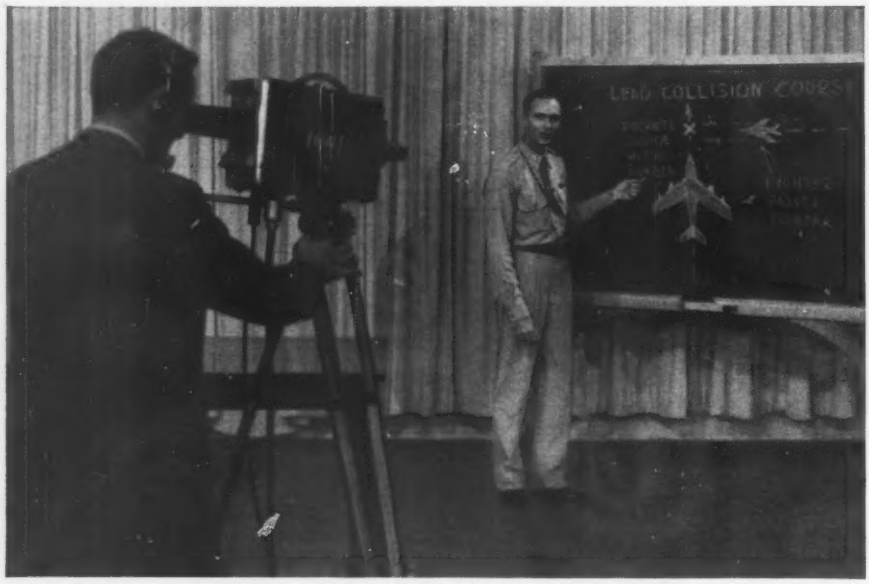
Air Force Association, would permit rated people to be paid for the time they are now required to spend without compensation in order to meet annual flying time requirements. The Department of Defense comptroller's office, however, has not agreed to expenditure of the additional funds required, and the Air Force believes the recommended figure of thirty-six additional training periods will be **compromised at a figure much lower.**

The committee met in Washington for one day, then moved to Denver for an inspection of Guard and Reserve actiivties.

* * *

A group of interested citizens in **Yakima, Wash.,** has started to beat the drums for the location there of a **Reserve fighter-bomber squadron.** And New Castle. Citizens' groups in the communities near Mitchel have demanded that the base be closed. The Guard squadron at Battle Creek was grounded during the ADC "Stopwatch" alert exercise when a property owner obtained a court injunction halting jet flying activities.

Pentagon sources indicate there are as many as **sixty-six locations** throughout the country where Air Force, Guard and Reserve flying **may have to be curtailed** because of community opposition. The Air Force Association, therefore, has announced that it will sponsor a **two-day conference** in Washington, **February 3-4,** to explore all sides of the problem. The Air Force Reserve and the Air National Guard are being asked to send representatives to the conference.



Something new for Penn State's AF-ROTC—classes via television for some 400 cadets in the Air Science II (sophomore) class. Capt. Warren Aiken, chief project officer, shows how the course material, training aid, and instruction are adapted to the medium of television. The Ford Foundation is sponsoring it.

even if their efforts fail, they are in striking contrast to the activities of citizens in other communities bordering Guard and Reserve flying units.

The problem became **acute** last month in such places as **New Castle, Del.; Mitchel Air Force Base** on Long Island; **Westchester County Airport** at White Plains, N. Y.; and **Battle Creek, Mich.**

The Westchester County Board of Supervisors rejected, by an overwhelming vote, a First Air Force proposal to locate a Reserve troop carrier squadron at the county airport. In Delaware, the lower house of the State Legislature voted unanimously to seek an end to military flying at

The **Supreme Court** has refused to review a **dual pay limit decision** handed down by the Court of Claims. This, in effect, **removes all ceilings** on the combined income of retired Reservists who work for the US government.

The case involved **Lt. Col. Paul Tanner** who maintained that the dual pay ceiling established by the Economy Act of 1942 did not apply to Reserve officers drawing retirement pay. This act first said that no person could draw more than $3,000 from two government sources. Later, it was amended to raise the ceiling to $10,000.

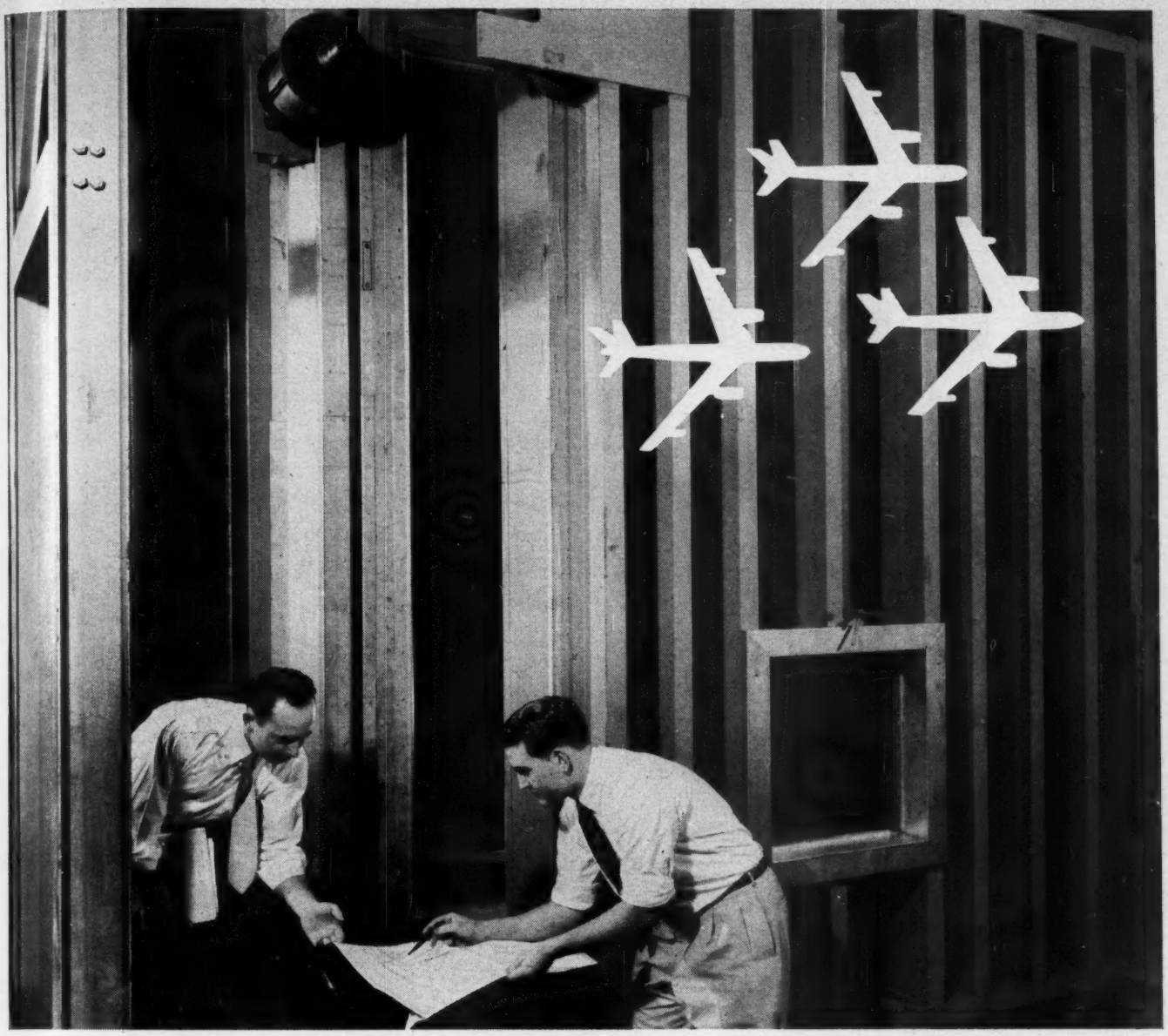
Colonel Tanner filed suit in the Court of Claims, and his position was upheld. The Comptroller General contested the decision, and the Supreme Court was asked to review it. The Supreme Court's refusal to review the case makes the Claims Court's decision stand.

Col. Alfred C. Schwab, Jr., reappointed chairman of AFA's ANG council.

The outcome will benefit Air Guard and Air Reserve officers who have retired under Title III of Public Law 810. No decision has been reached on whether reserve officers retired under Title II of the same law are also exempt from the $10,000 dual pay ceiling. Retirement under Title II is based on twenty years of active duty.

* * *

Notes on the back of a Form 175 . . . NGB advises that **certificates of apointment** for non-commissioned officers are now available. This certificate is issued to airmen in E-5, E-6, and E-7 pay grades . . . ANG units are being asked to provide copies of their **training assembly schedules** to their ADC and TAC advisory units. . . . Flying units have been told by the Bureau of speed development of **standardized training and transition programs** in line with requirements established by USAF. Standardization plus closer supervision, says the Bureau, will cut the Air Guard accident rate . . . Arrangements have been made with ConAC for **payment of ANG people before Christmas.** This payment will reflect training performed in October and November. Next payroll, to be submitted after the first quarter of 1956, will include the drills performed in those three months plus December . . . **Air Training Command** is publishing its **Manual 50-7** in two volumes. One establishes training standards for officers the other for airmen. NGB is asking ANG units to use the volumes in their training programs—*Edmund F. Hogan*



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THE PENNSYLVANIA UNIT'S MEETING PLACE IS THE CENTER OF ALL LOCAL AIR ACTIVITY

SQUADRON OF THE MONTH

The Mifflin County Squadron Lewistown, Penna.

CITED FOR

outstanding achievement in the field of Squadron programming and accomplishment. This Squadron's clubhouse is a fine example of the results of teamwork and unswerving determination.

The forty-member **Mifflin County Squadron,** Lewistown, Penna., is not among the AFA leaders, numerically speaking. But they are the proud owners of **one of the finest clubhouses in the nation.**

Originally a **pre-fab schoolhouse,** the building was **renovated** and donated to the Squadron by one of its members. The one-story unit has a large **meeting room** on the main floor. It seats some **300 people** comfortably. The room is decorated with an **air-power motif.** It is the center of **all aviation activities** in the city of Lewistown. It also is the scene of the weekly meeting of the **Boy Scout troop,** and has been designated Message Center for the **Civil Defense Agency.**

Below the main room is a pine-paneled **recreation room,** complete with refreshment bar and grill. The two rooms are available to members for social gatherings.

Though the building itself was free to the Squadron, there are normal operating expenses which must be met by the membership. These are met by **annual Air Fairs,** three of which have been held to date. The funds from these programs are used for operation of the Squadron, resulting in a sound financial program.

The Mifflin County Squadron has the **first State Auxiliary unit.** The men and their wives collaborate on practically every program undertaken by the unit. The Squadron has furnished state, regional, and national officer material for AFA and currently is represented on the national level by **Randall Leopold,** who also has served as Wing Commander.

Max Fleming is Squadron Commander. The other officers are **Peter Marinos,** Vice Commander; **Gene Snook,** Secretary; and **Paul Foss,** Treasurer. They all live in Lewistown. Auxiliary president is **Mrs. Georgetta McMahon,** wife of Claire McMahon, a past Squadron Commander. **Mrs. Arlene Headings, Mrs. Frieda Wilson,** and **Mrs. Ruby Fleming** are the other Auxiliary officers.

The 1955 Wing convention delegates were guests of the Squadron. This was the second time that the convention has been in Lewistown, and was one of the most successful of the 1955 Wing programs. The official delegates at the meeting numbered

(Continued on following page)

Aerodynamicist Harold Luskin (left), recently addressed Santa Monica members on future supersonic aircraft. Commander Theodore Stonehill greets him.

President Wilson is welcomed to Mifflin Clubhouse by (left to right) Carl Long, Randall Leopold, and John Currie.

Mifflin AFA Squadron holds regular meetings in its clubhouse. It is also available to Boy Scouts and other groups.

Reni Photos

Maj. Helen O'Day (left), Capital Squadron Commander Don Steele, and Col. Phyllis Gray, WAF Director, at Washington premiere of the "McConnell Story."

117, and 173 attended the banquet. AFA President **Gill Robb Wilson** delivered the major address.

Milwaukee's Billy Mitchell Squadron was host to some 200 guests in October, an **"Industry Meets AFA"** meeting, which brought together representatives of area aviation industries, top leaders of AFA, and high-ranking officers of the **Continental Air Command** and the **Tenth Air Force.**

Gill Robb Wilson, AFA President, delivered the major address at the Airpower Banquet, following a reception at Tanner-Paull Legion Post in West Allis, Wis. **Brig. Gen. Felix Vidal,** Deputy for Reserve Affairs, ConAC, and **Col. Lloyd E. Arnold,** representing Maj. Gen. Robert E. L. Eaton, Tenth AF Commander, also spoke at the banquet.

Charles E. Dye, 3869 N. 56th St., Milwaukee, is Commander of the Squadron. **Leonard Dereszynski,** Commander of the Wisconsin Wing, was chairman of the program.

Maj. Gen. Robert E. L. Eaton, new Commander of the Tenth Air Force, Selfridge AFB, Mich., was officially welcomed to Detroit at a press conference and reception sponsored by the **Hoyt S. Vanderberg Memorial AFA Squadron.**

As Commander of the Tenth, General Eaton is responsible for maintaining the combat readiness of some 47,000 AF Reservists and Air National Guardsmen in thirteen states. He replaced **Maj. Gen. Richard A. Grussendorf,** now Commander, Sixth Allied Tactical Air Force, in Turkey.

AFA President **Gill Robb Wilson** and **Ralph Whitener,** AFA's Program Director, were among the guests of the Squadron, which is commanded by **Morton Hack,** of Detroit.

The **Delaware Valley Squadron** meeting in **Wilmington,** one of AFA's youngest outfits, has been busy. In October, at their first regular meeting, the guest speakers were **Brig. Gen. William W. Spruance,** Chief of the Air Staff, Delaware ANG, and a member of AFA's Air Guard Council (also a Life Member); **Col. Clay D. Albright,** New Castle County AF Base Commander; and **Col. John S. Bagby,** Commander, 512th Troop Carrier Wing, AF Reserve, which furnishes a majority of the Squadron membership.

Robert Vogeler, the American newspaperman imprisoned by the Hungarian Communists, spoke last month; and in December, **Sen. J. Allen Frear, Jr.** (D.-Del.), will speak. Senator Frear has just returned from a tour of Russia.

The **Santa Monica, Calif., Auxiliary unit** has been having hospital parties at **Wadsworth General Hospital** in Los Angeles. A **"Fashions in Flight" tea** was sponsored to finance the parties. Some 150 guests attended this first program, which was under the direction of Auxiliary president **Charlotte Goldberg** and Program Chairman **Dorothy Myers. Miss Joyce Teague** served as narrator.

Representatives of **six Southern California Auxiliary units**—guests of the **San Fernando Valley unit**—sponsored an **Airpower Education Symposium** for members and guests from other women's organizations in October. Wing President **Billie McLaughlin** was chairman. Toastmistress was **Miss Claudia Howalt.**

The speakers were **Miss Janielou Haney,** Los Angeles Auxiliary, **"History of Airpower"; Mrs. Mary MacKellar,** Air Harbor, **"Strides in the Development of Civilian Airpower"; Mrs. Grace Howell,** Yarnell, **"Civil Air Patrol"; Mrs. Charlotte Goldberg,** Santa Monica, **"Strides in the Development of Military Airpower"**; and **Mrs. Hazel Riley,** San Fernando Valley, **"The USAF Academy."**

The **San Diego Squadron** has sponsored another program involving leading civic, educational, and press leaders, acquainting them with the **national defense picture** through tours of nearby **military installations.**

Valley Times Photo

President Wilson and Group Cmdr. Bill Barcoff shown at September dinner meeting of AFA's Greater LA Group.

Edwards AFB was the site chosen by the Squadron for the tour. It included a tour of the base, a briefing, a trip through the NACA hangars, and lunch, compliments of **Brig. Gen. J. Stanley Holtoner,** USAF Flight Test Center Commander.

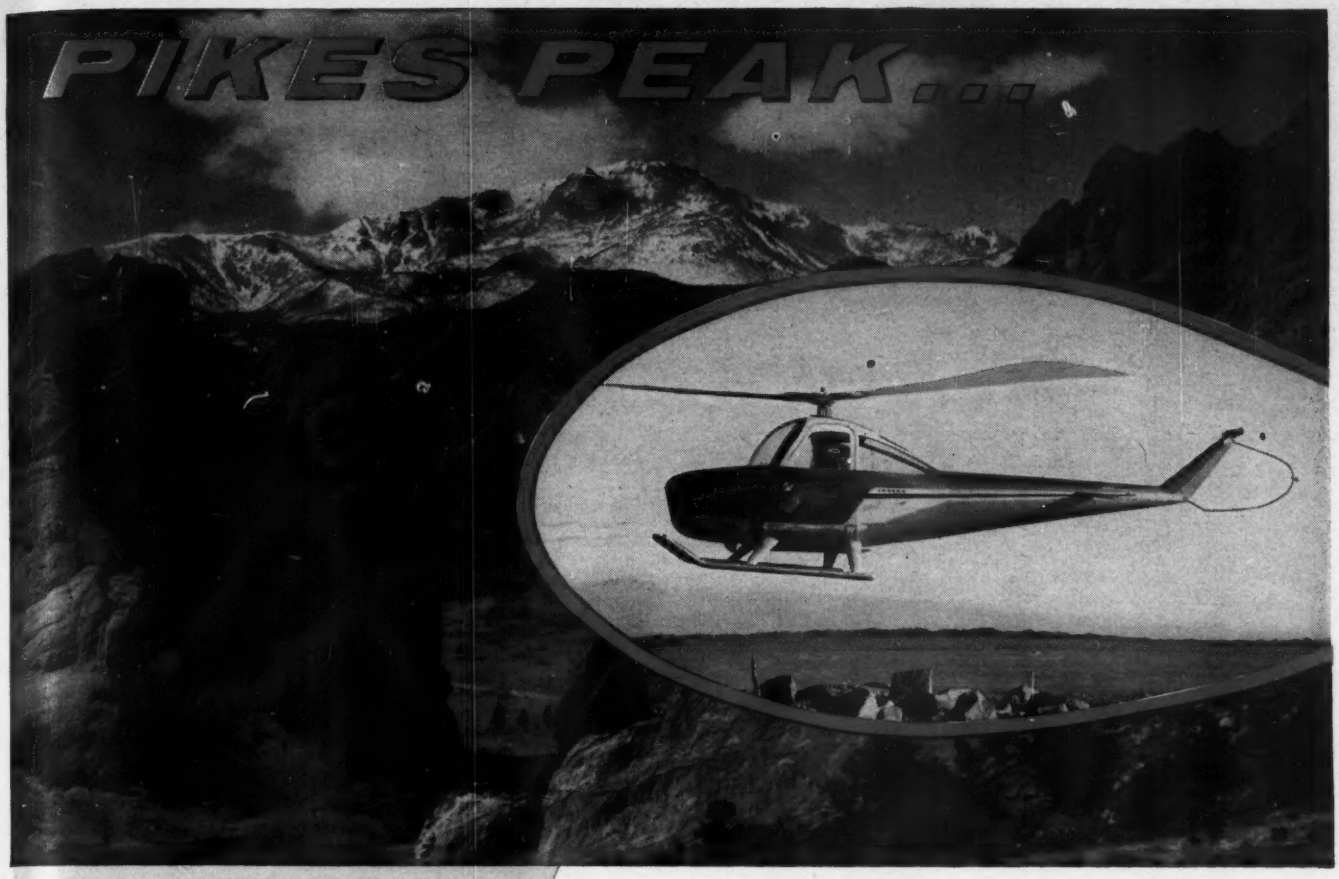
This program has earned the San Diego unit **two successive national awards.** The Squadron Commander is **Jim Snapp, Jr.**

Maj. Arthur Murray, holder of the world's altitude record, addressed members of the **Olmsted Squadron, Harrisburg, Penna.,** praising the capabilities of the **Lockheed F-104.**

Major Murray recalled some of the problems encountered during early tests of the **Bell X-1A** rocket-powered plane which he flew at speeds of **more than 1,600 mph.** "The new F-104 will show how fast a production model of an aircraft can be," he said.

"Up to a very few years ago," he stated, "aircraft research was at least

(Continued on page 109)



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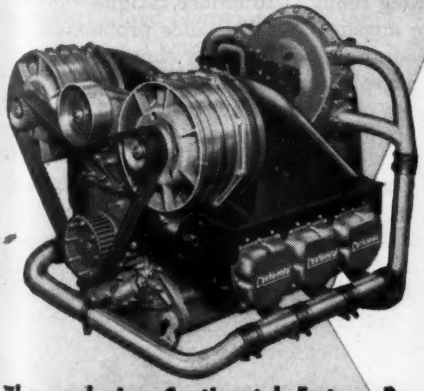

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On Sept. 13, 1955, a Cessna CH-1 helicopter settled to a landing on the summit of Pikes Peak, something no aircraft of any type had ever done before. Then, after taking a third passenger aboard, it successfully finished hovering tests begun earlier in the week, including a climb to an indicated altitude of 17,600 feet above Colorado Springs. At Camp Hale, it hovered with 50 gallons of fuel and four persons aboard—a phase of the test considered especially noteworthy, since it took place at a season when all flying operations in the area are normally suspended because of extreme turbulence at this high altitude . . . These latest tests add to the already fine performance record of the fastest certified helicopter in the United States. The characteristics demonstrated in the Colorado workout speak volumes for the power plant, too, and what they say has real meaning for all who own or fly utility planes. They underscore the wisdom, now more apparent than ever, of choosing a plane which gives you dependable Continental power.

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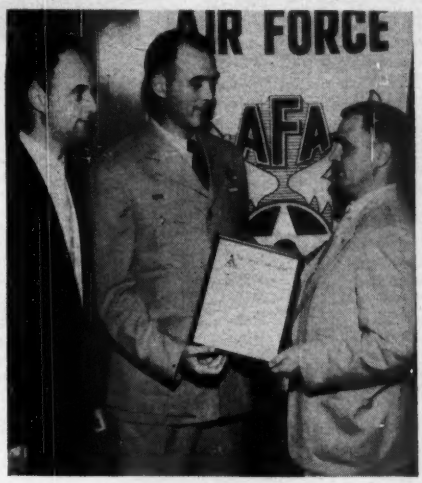
five years ahead of production, but that gap has been greatly narrowed now."

Major Murray was introduced by **Bill Lunsford,** public relations chairman for the Squadron, and chairman of the 1956 Wing convention. This meeting is scheduled to be held in Harrisburg.

The **Minute Man Squadron,** of Arlington, Mass., has instituted an awards program honoring the outstanding **"Airman of the Year"** in the **89th Fighter-Bomber Wing** at Grenier AFB, N. H. Winner this year was **S/Sgt. William F. Gillespie,** a member of the Motor Vehicle Squadron. **Lt. Col. Arthur C. Carroll,** Commander of the 89th, and a member of the AFA Squadron, made the presentation during a Wing formation. Sergeant Gillespie received a **wrist watch** donated by Rogers Jewelry Company, of Boston.

The commander of the Minute Man Squadron is **Richard E. Carter,** 147 Jason Street, Arlington. Carter is a Reservist who is active in the 89th Wing, from which most of the membership of the Minute Man Squadron is drawn.

CROSS COUNTRY.... **John Bainer,** Past Commander of **Long Beach's First Reserve Squadron,** has been given a jeweled lapel pin for his service as commander. **Floyd Damman** made the presentation. . . . **Colorado** has a new Auxiliary. **Anita Hewett,** wife of the past Wing Commander, was elected President of the unit. . . . **Joanne Affronte** of Long Beach, has been named Chairman of the **1956 California Wing Convention.** The event is planned for April 20-22, 1956, with **Long Beach's LaFayette Hotel** as headquarters. . . . The **Baltimore Squadron** is helping to plan and sponsor an **Aviation Education Workshop** for 1956. . . . The most recent meeting of the **Elgin, Ill., Flight** witnessed the presentation of the **Soldier's Medal** to **Albert J. Frieders,** for heroism he showed in extinguishing an aircraft fire at Travis AFB, Calif.—END



Lt. Col. Edwin Heller accepts membership citation from Philadelphia CO Frank Stieber. Joe Daugherty watches.

STATE WING

Winged "Missouri Elk" is featured on official Wing emblem. Ray Beck, St. Louis Squadron member, is the artist.

MARCH OF DIMES

FIGHT INFANTILE PARALYSIS

JANUARY 3-31

Mrs. Brown refused to sink

"KEEP rowing or I'll toss you all overboard!"

The threat came from a redhead in corset and bloomers, with a Colt .45 lashed to her waist. And as the lifeboat marked *S.S. Titanic* lurched ahead, she rowed too.

Mrs. Margaret Tobin Brown had come a long way to take charge of that lifeboat. Once penniless, she now had millions. Once spurned by society, she now hobnobbed with nobility.

But, she said, "You can't wear the social register for water wings." Her $60,000 chinchilla covered three children; her other outer garments she had given to elderly women. She threatened, sang opera, joked—and kept her boat going till rescue came.

When they asked her how she'd done it, she replied, "Typical Brown luck. I'm unsinkable." But it wasn't luck. It was pluck. And Americans have always had plenty of that smiling, hardy courage. It's one important reason why our country's Savings Bonds rank among the world's finest investments.

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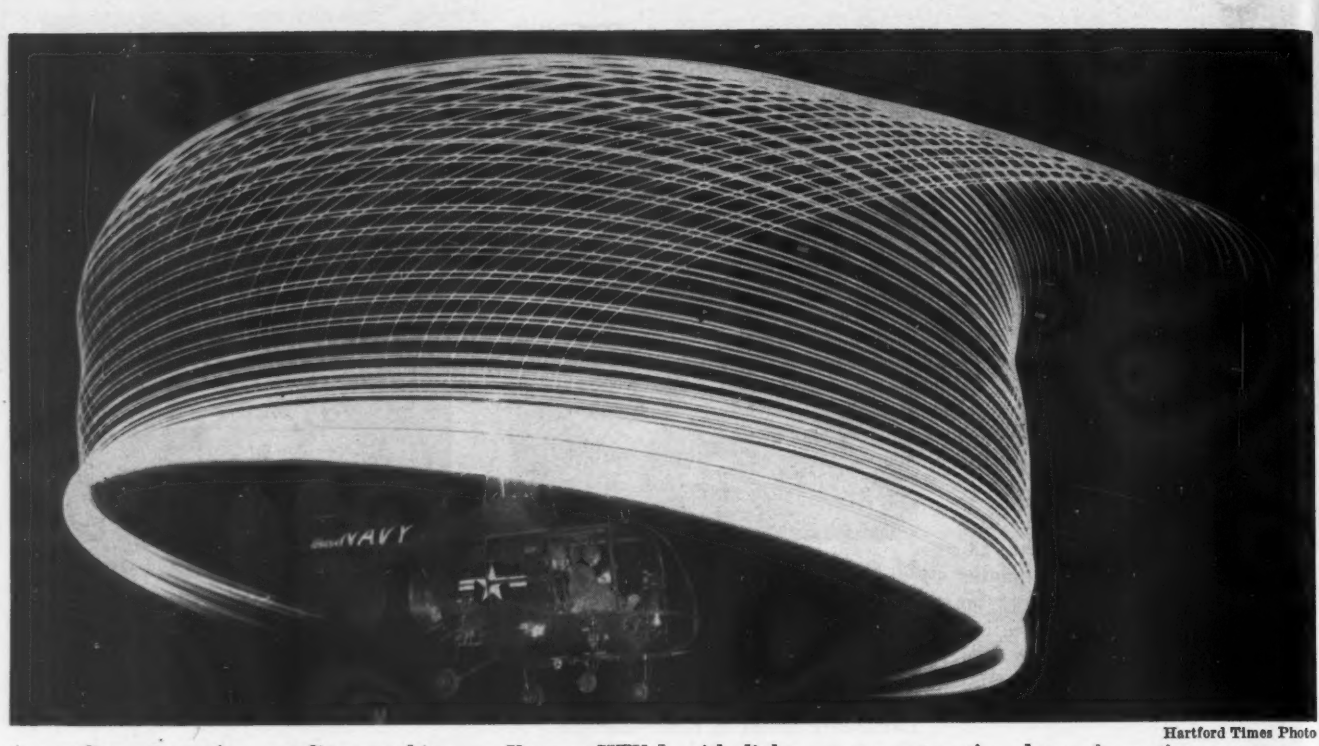


Hartford Times Photo

A startling view of a startling machine—a Kaman HTK-1 with light on one rotor tip, shown in a time exposure.

The versatile helicopter proves its worth

Aviation's Utility Infielder

By Louis Alexander

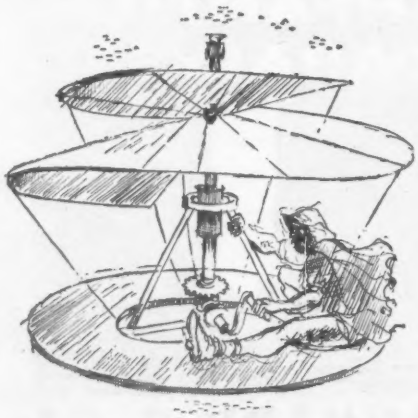
LIKE an animal trainer amid his snarling tigers, a tiny helicopter settled slowly to earth below the angry buzzing of circling jet fighter planes. Puffs of smoke and flame showed where the fighters were strafing and bombing the perimeter of the circle.

A man jumped out of the helicopter almost before it touched the ground. Pilots in the circling fighters could see him run toward a patch of trees a few yards away, kneel, lift and carry an inert form back to the helicopter. Then the helicopter started up again, and the circling fighter planes roared in for one final buzzing of the fiery ring.

This is how the air rescue of a wounded, helpless American pilot looks from a few thousand feet above it. It is perhaps a swing of the pendulum in the history of aviation that big fighter planes should be used to support the actions of slow, small helicopters.

During their "hangar flying" at nights, perhaps none of the pilots recalled the intentions of Leonardo da Vinci, who, about 400 years before, had sketched a diagram that almost exactly forecast the helicopter.

Leonardo was a scientist, but not a cold, unfeeling scientist. The warm Madonnas he painted are prizes among the living examples of the greatest era of Italian art. It is doubtful, however, that he could have visualized his *helix optera* as primarily a humanitarian machine. But he would have approved. It would have suited his conception that machines should be highly functional and as pragmatic as they could be made to be.



Some 400 years ago Leonardo da Vinci designed the *helix optera*.

If Leonardo had watched a helicopter swinging low over the Louisiana marshes, a magnetometer trailing behind, he would have felt that here was indeed a scientific use for a scientific development. He would have sanctioned the use of helicopters to cross the unsure reaches of the bayou country, lighting like mosquitoes on places that neither marsh-buggy nor man could cover rapidly, in the search for new sources of oil.

Yet Leonardo would not have believed that the technical problems involved in making his idea a reality would stymie men for so long. Inventive, ingenious men, while harnessing

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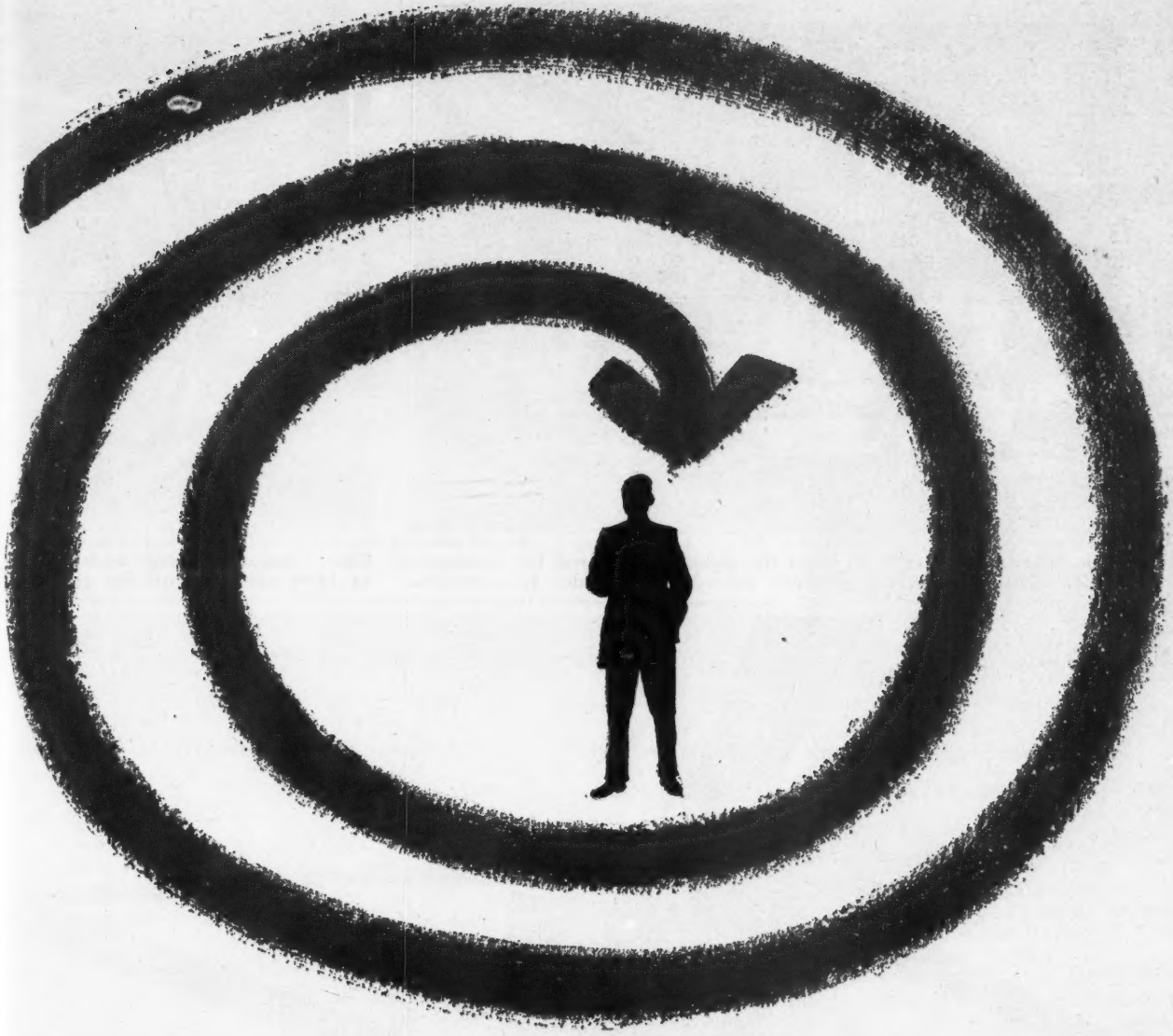

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Bettmann Archive

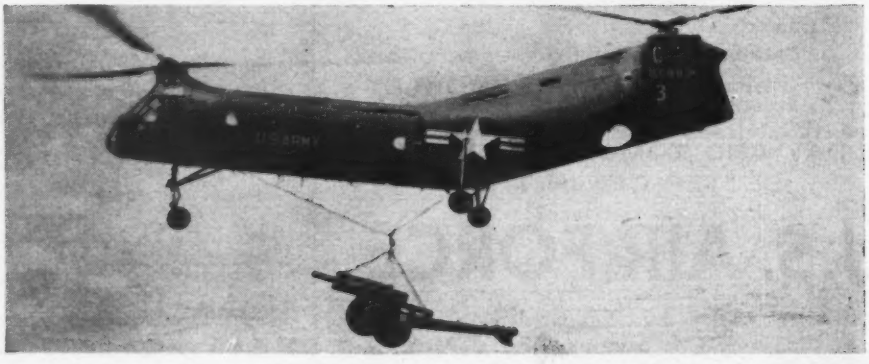
In the 1920s Juan de la Cierva invented the autogiro, powered by a conventional engine. After take-off, air pressure caused rotor blades to windmill.

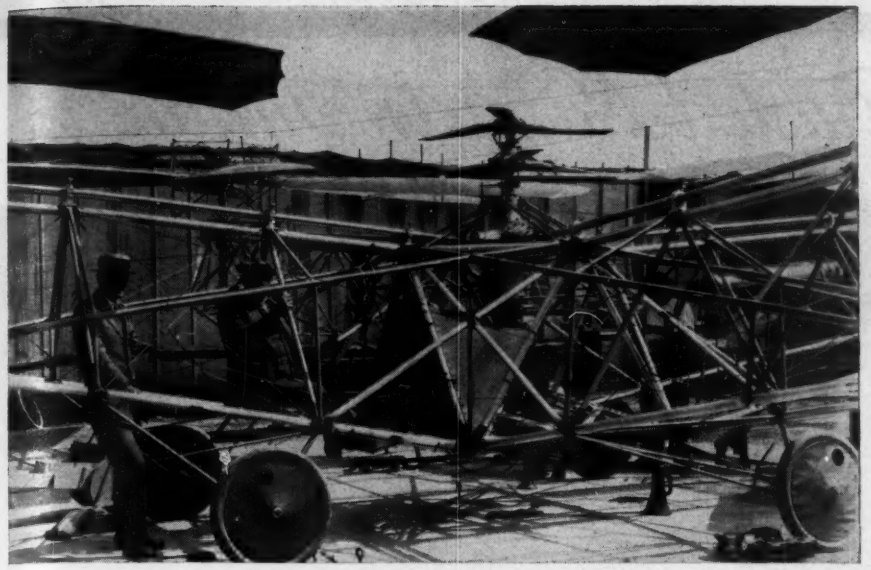
Bettmann Archive

This German-designed aerial bicycle of 1894 never got off the ground...

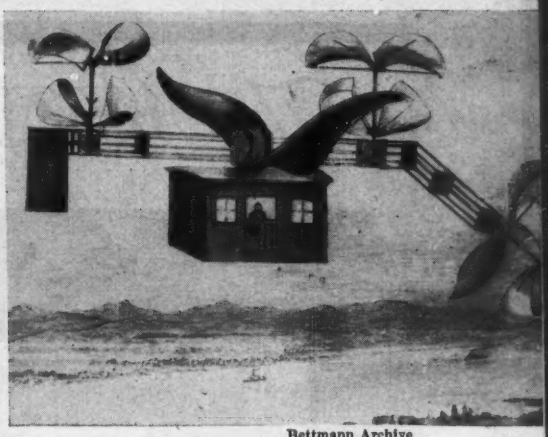
They're making 'em bigger every year. This monster, weighing in at more than 30,000 pounds, is the Piasecki H-16.

A new dimension for Army mobility. It's all in a day's work for this Piasecki H-21C to heft a 105mm. howitzer.





Russian-born George de Bothezat (shown seated) had US Army backing for his unwieldy helicopter, which flew in the 1920s, but the project was dropped.



Bettmann Archive

Originality was plentiful in 1876 as shown in this design by W. J. Lewis.

Igor Sikorsky (left), shown with G. W. Taylor of Boeing, solved many of the problems 'copter designers faced.

HELICOPTERS — CONTINUED

the thunderbolt, the tea kettle, and rays of light, were baffled for almost four full centuries by the difficulties involved in making a helicopter go forward and in keeping the machine right-side-up.

The shrewd Leonardo designed his *helix optera* with an overhead rotor which would screw up into the air, bearing the weight of a fuselage with passengers and cargo. The Greek name meant, literally, "spiral wing."

For many decades inventors paid closer heed to Daedalus and Icarus than to Leonardo. Like the fabled characters, they believed the secret of flight lay in copying the motions of the birds.

There were a few notable exceptions. From China, merchants brought to Italy and France a little toy of feathers and rods. Rotating feathers raised the toy aloft on a shaft. In 1784 Launoy and Bienvenu manufactured them in France. A French inventor of the nineteenth century made a device which looked like a tea kettle with two opposed spouts (strangely like a ramjet helicopter).

When Samuel Langley and the Wright Brothers and Chanute at the end of the nineteenth century sparked the revival of interest in making a flying machine that would lift a man and a load, a few other inventors tackled the problem of rotary-wing flight in the fashion first explored by Leonardo.

Paul Cornu, Louis Charles Breguet, Emile and Henry Berliner, Dr. George de Bothezat, Etienne Oemichen, and a Russian named Igor Sikorsky all spent much time and money in the early twentieth century fastening rods and pulleys to lightweight frames.

Oemichen's machine got off the ground, rose to the height of a man and traveled a score of meters or so. But no one could predict which way it would go. Indeed, only Oemichen knew which lever to pull to control the thirteen separate transmission systems which powered four propellers whirling above it!

In the twenties, a wealthy sportsman named Juan de la Cierva read some of the obscure writings in scientific journals of earlier days. One of the few flyers in Spain, he took an interest in the experiments of de Bothezat, Oemichen, Sikorsky, and the others. He wondered why their devices would stay up but not follow controlled courses.

He thought that perhaps their complex devices of many propellers (rotating wings) was not the best way to achieve rotary-wing flight. So he reverted to Leonardo's originial idea and constructed a helicopter with only one set of blades.

Cierva was encouraged. His helicopter worked fine in his barn. Cierva would start the motor and the whirling wing above would lift the helicopter till the barn roof became a barrier holding it in.

So Cierva took the helicopter outside. The first flight nearly killed him. The helicopter rose as before; he started it forward. It promptly flipped over on its back. Cierva arose from the crash, less injured than startled. He did a lot of thinking about it and finally thought he had the solution. But he never did build a successful helicopter from his new idea, so far as history knows.

Reading one day about Lindbergh's famed flight alone across the Atlantic Ocean, Cierva changed his interest to making record flights. He entered a competition in 1928 flying an autogiro, which he invented, across the English Channel.

Autogiros are different from helicopters. Something—usually an auxiliary propeller in front—has to get an autogiro started forward until it can build up sufficient speed for its overhead rotary-wing to take over the flying. A little easier to design, autogiros had limitations similar to those of airplanes, which made them less suitable than helicopters for many special long-range needs of aviation.

However, the development of the helicopter is indebted to autogiros for a curious advance. Cierva's successful autogiro flight across the English Channel in 1928 made him a public figure. Newsmen interviewed him, asked his opinions on aviation matters, and learned that he had invented a helicopter which—he diffidently mentioned—he thought would stay right-side-up and go forward too.

He told them that a plane could obtain its lift from a horizontally rotating wing on a helicopter just as well as from a fixed wing on an air-

(Continued on page 115)

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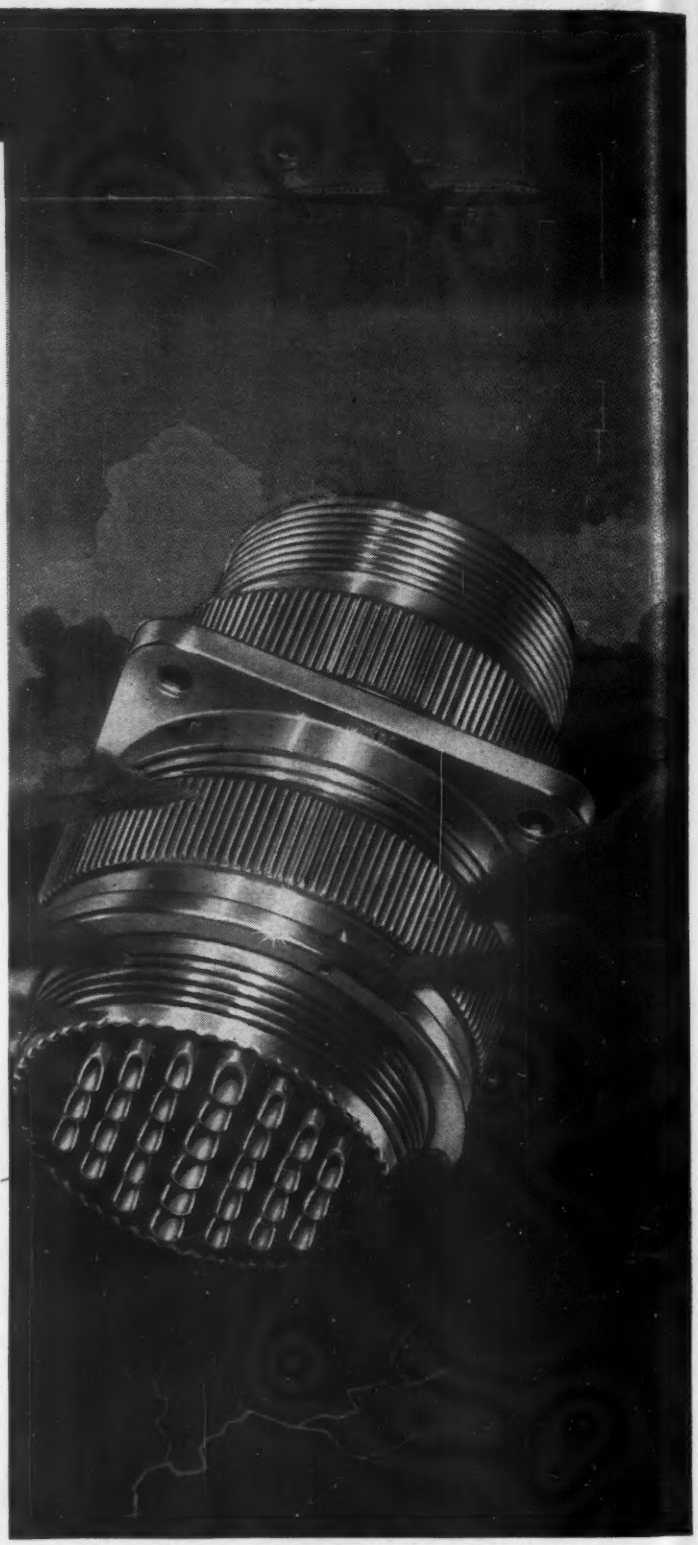

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Amphibious landing gear on the Sikorsky H-19 makes it a real triple-threat aircraft in rescue, search or air evac.

plane pulled by the thrust of a vertically rotating propeller. Then Cierva introduced the newsmen to the problem—when a propeller revolves vertically, all parts of the propeller are moving forward at the same speed, thus producing technically the same amount of lift or thrust. But when a propeller revolves horizontally, and the helicopter begins moving forward at the same time, the advancing blade is moving faster, because of the combined speed of rotation and forward motion. The retreating blade is moving slower because of the subtraction of rearward motion from the speed of rotation.

Cierva triumphantly explained that the advancing blade produced more lift than the retreating blade. There was uneven lift, and plop went the helicopter over on its side. He told the newsmen he believed that if he fastened the blades to the rotor hub so that they were free to provide variable lift, they would adjust the amount of lift according to the direction in which they were going—and the helicopter would stay right-side-up. This device, the flapping hinge, finally made it possible to build a controllable helicopter that would fly.

For some reason unknown to historians of aviation, Cierva never did construct a helicopter again, with his revolutionary flapping hinge. If he had, it probably would have been the first successful one in the world. For the principle he hit upon was used in 1937 by Heinrich Focke to fly a helicopter in Germany, to keep it aloft for over an hour, and control it over a course of more than a hundred miles.

But even Cierva and Focke hadn't licked the final problem. While their kind of helicopters would fly, could be controlled, would carry men and loads, the machines were delicately balanced and wouldn't carry very much or go very far. It remained for Igor Sikorsky, re-entering the field of design that had licked him in 1909, to advance Cierva's flapping hinge ideas to solve the final problem of carrying enough load simply and safely.

Sikorsky improved the flapping hinge. Varying the angle of the rotating wings had enabled a pilot to control the helicopter in flight. But it wasn't flexible enough. The helicopter's center of gravity was limited to a small circle only a few inches across. The least variation from a balanced load was dangerous. Large loads were dangerous, too.

The flapping hinge arrangement that Sikorsky designed enabled the blades to set their own lift angle as they rotated. The range of variations was increased, and it became much

(Continued on following page)

About the Author

Lou Alexander has been county editor of the Houston, Tex., Chronicle *since 1947 and also handles the paper's aviation news. He's a member of the new AFA Squadron in Houston. In WW II he was a combat navigator with the 15th AF in Italy, and during Korea he was an instructor and assistant operations officer in Air Training Command. Educated at the University of Newark with post-graduate work at the University of Houston, he's married and has two daughters. He's now a Reserve captain, rated as a commercial pilot, and teaches ground school at an airport near Houston. He's been free-lancing since 1950.*

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HELICOPTERS — CONTINUED

Eggbeaters like this Sikorsky H-5 made hundreds of daring, behind-enemy-lines or off-shore rescues in Korea, as the helicopter indeed came of age.

easier and safer to balance the otherwise delicate craft.

By a clever mechanical arrangement, Sikorsky made it possible for each blade to move a little forward or backward, a little up or down, according to the forces at work on it. He also hooked the blade control system into the hub at right angles, a simple change which greatly enlarged the area within which the center of gravity was safe.

Sikorsky also solved the problem of torque by counteracting it with a small vertical propeller on the tail. Altering the pitch of its blades enabled the operator to increase or decrease torque for directional control.

Helicopters—Sikorsky helicopters—went into mass production for the first time late in 1943. Although rotary-wing machines were more complicated than comparable airplanes, the promises of helicopter transportation began to come true. The first models cost the United States Army about $80,000 apiece, and over ten years later the original 'copters were still flying at Edward Gary AFB, San Marcos, Tex.

The twirlybirds could set a load down in a small space anywhere—no long, smooth runway without tall obstacles was necessary, as for airplanes. If the pilot wanted to go twenty mph instead of 120, the helicopter would oblige.

When the Korean war broke out in 1950, the helicopter broke out of its limitations. Within a year, helicopters of the MATS Air Rescue Squadrons had saved the lives of more that 1,500 fighting men.

On one occasion, disdaining slow, unpredictable mules, a detachment of Marines landed from 'copters on top of a Korean hill that even jeeps couldn't climb. They drove off an unsuspecting, unbelieving enemy. It was the first mass movement by helicopter in history. Now the Marines, and the Army, too, have ordered whirlybirds to move large portions of every fighting unit.

An air rescue pilot got a message that the pilot of a 600-mph jet had parachuted out of his plane 100 miles behind enemy lines. An incredible new tactic, just born, was used to rescue him. A flight of jet fighters flew to cover the slow-moving helicopter. They strafed the area surrounding the spot where the wounded pilot lay praying for help. The fighters seared with napalm any spot enemy fire was coming from. The helicopter pilot and his para-medic assistant settled within a few feet of the wounded man, put him aboard a litter bound to their side, and took off, still protected by the ring of fire from the fast-moving jets.

Another time, a Navy helicopter rescued a carrier pilot within thirty seconds after a crash landing in the sea. The pilot hardly had time to get wet.

Army patrols reported wounded men lying behind the enemy lines. Often helicopters rescued the men within fifteen minutes after they began bleeding. Such tactics enabled the military medical corps to reduce deaths from wounds from an already low percentage to one four times as low. If a man was rescued alive, he

(Continued on page 119)

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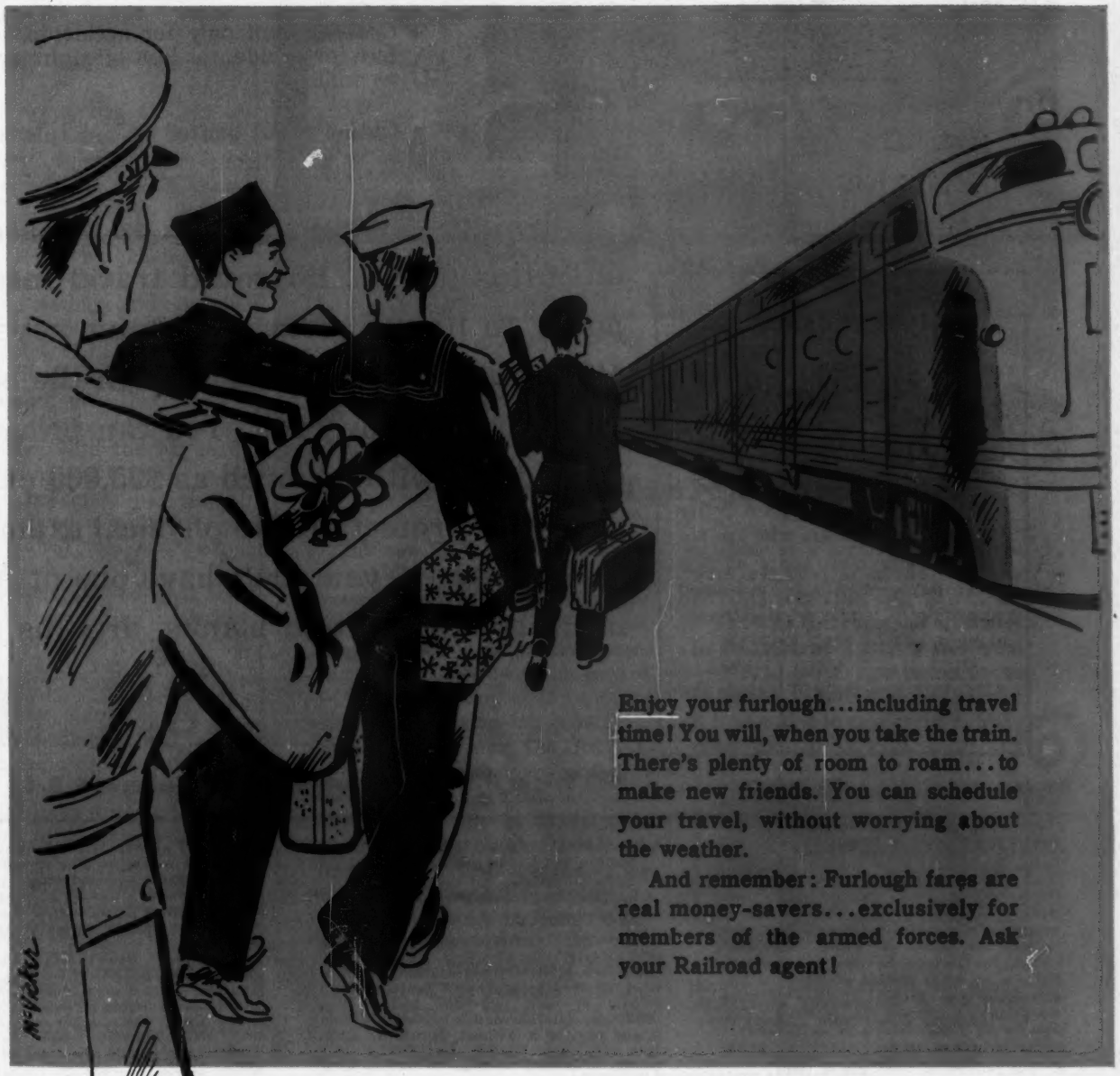

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Helicopter experiments go on. Here's the American Helicopter Company's one-man bird — the compact XH-26.

could be pretty sure of remaining alive.

In peaceful ways, too, the era of the helicopter was beginning to show the possibilities of which Leonardo may have dreamed. At Cardiff, England, a helicopter shuttle service transported passengers daily over a route too short to be practical for flight of transport planes with their time-consuming landings and take-offs requiring considerable visibility.

In Los Angeles, Calif., a helicopter made regular daily flights from the Municipal Airport, over the creeping traffic jams, to the top of the downtown post office, with the air mail. Even the blinding smog hardly mattered, for the helicopter just slowed down to a safe speed, a maneuver that would have stalled and smashed a fixed-wing airplane.

A Texas cattleman called for a helicopter to locate some stray cattle lost in the reaches of his West Texas ranch. The helicopter found the bawling yearlings and the nearly starved steers even faster than the rancher's jeep-mounted cowboys could have. Then, scaring the cattle with its shadow and the pistol-like reverberations of its flapping blades, the world's first aerial roundup by helicopter got under way.

Now that the advantages of helicopter flight are a reality, designers are attempting to combine—in the convertiplane—the long range and high speed advantages of fixed-wing aircraft. Helicopters may lead the way to mass production of the family airplane.

In the military, as in the oil industry, the postal service, commerce, and police work, and with new applications still being found, Leonardo and his followers have written a bright chapter in the annals of airpower.—END

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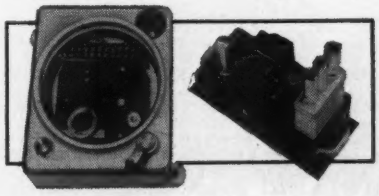

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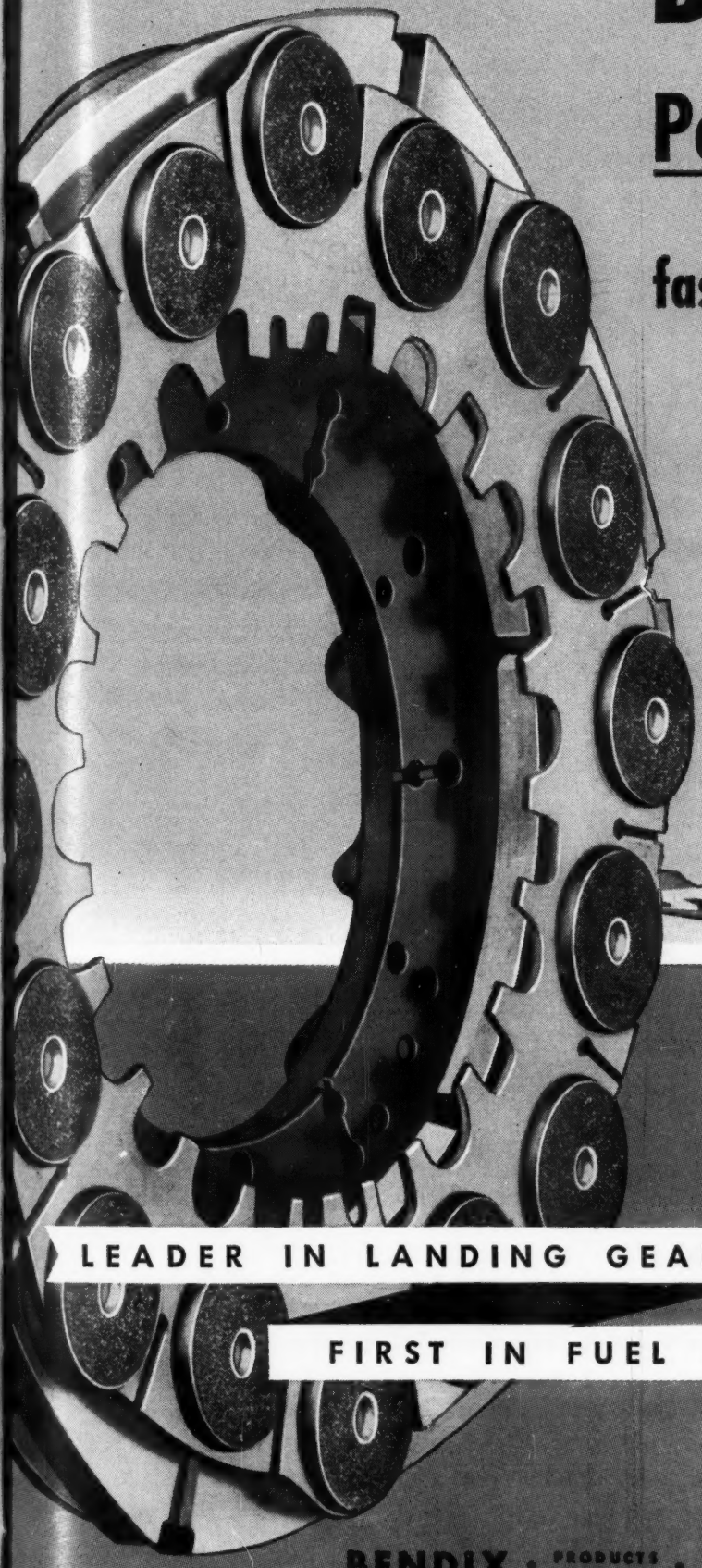

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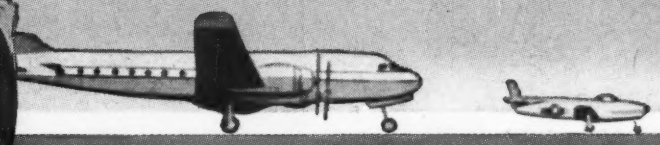

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